# Gsi
# User's Manual

CMLP
SRR

2012

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# Chapter 1

# Introduction

Gsi is a graphical interface that greatly facilitates the implementation and configuration of large economic models in GAMS. This also facilitates the possibility to run several scenarios for the same model and from the interface itself can compare the different results generated. This tool simplifies the task of studying the different solutions and draw solutions through them. The following figure illustrates how the system is structured:

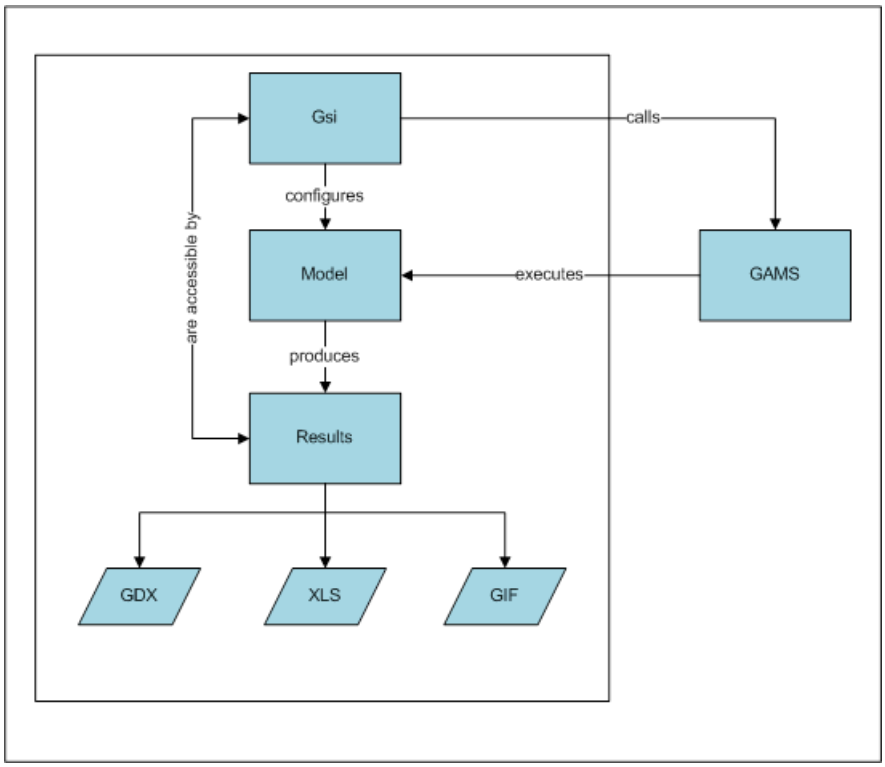



Figure 1.1: General diagram

This document will detail the steps needed to install the interface as well as the steps necessary to incorporate a specific pattern on it. Also be reflected in those paragraphs graphically the way in order to facilitate the understanding of them.

# Chapter 2

# Installing the program

## 2.1 Installation steps of the interface

To install the program on your computer you must have the installer that you have received from some digital media. The installer is basically a root directory containing two files: setup.exe and Gsi.msi Installer as follows:

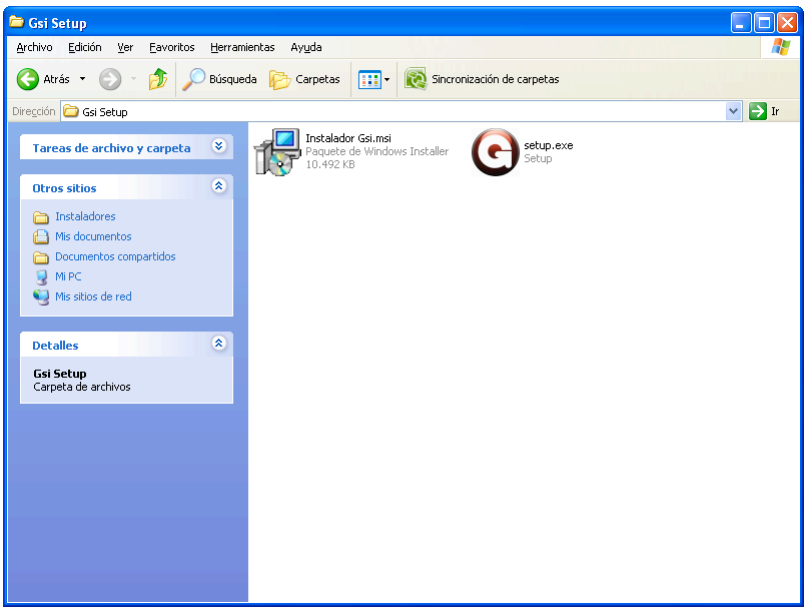



Figure 2.1: Installation files

After double clicking the setup.exe file we submitted the initial screen of the wizard that will guide us to install the program:

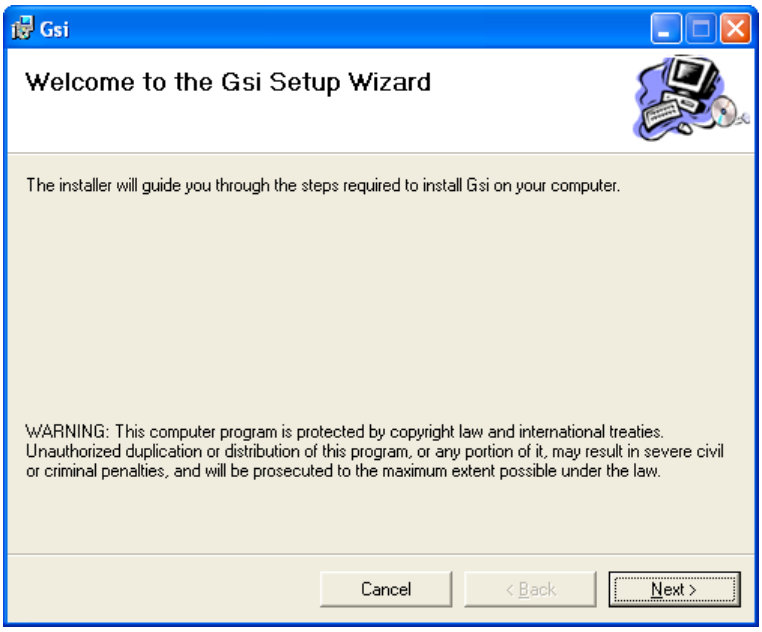

Gsi
Welcome to the Gsi Setup Wizard
The installer will guide you through the steps required to install Gsi on your computer.
WARNING: This computer program is protected by copyright law and international treaties. Unauthorized duplication or distribution of this program, or any portion of it, may result in severe civil or criminal penalties, and will be prosecuted to the maximum extent possible under the law.
Cancel
< Back
Next >

Figure 2.2: Welcome screen

After clicking the Next button will display showing the license agreement governing the use of this program. To continue with the installation should be accepted in terms of the agreement and click *Next*:

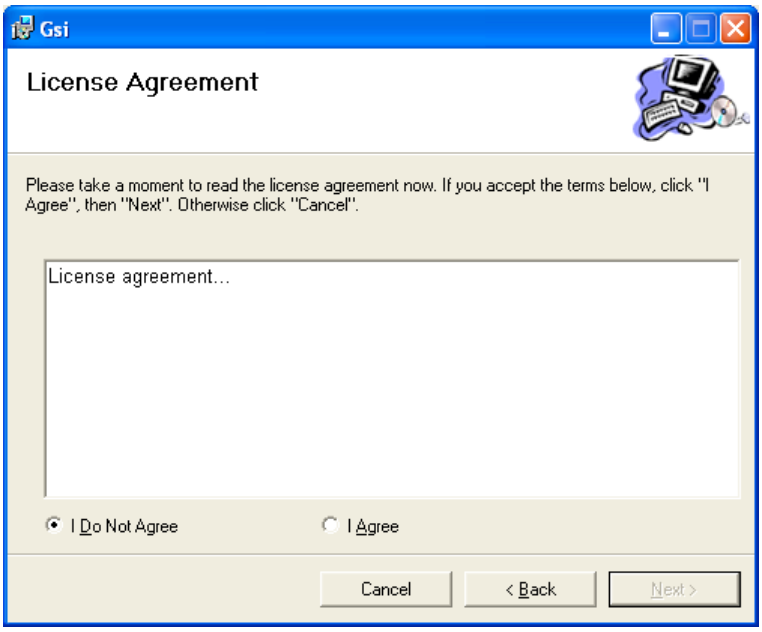

Gsi
License Agreement
Please take a moment to read the license agreement now. If you accept the terms below, click "I Agree", then "Next". Otherwise click "Cancel".
License agreement...
I Do Not Agree
I Agree
Cancel
< Back
Next >

Figure 2.3: Licence agreement

You must then tell the installer the path where the program files stored. Although the installer offers a default and can be changed by pressing the Browse button. In addition also provides the ability to install the program for the current user of the system or for all those in it. After choosing the desired options, click on *Next*:

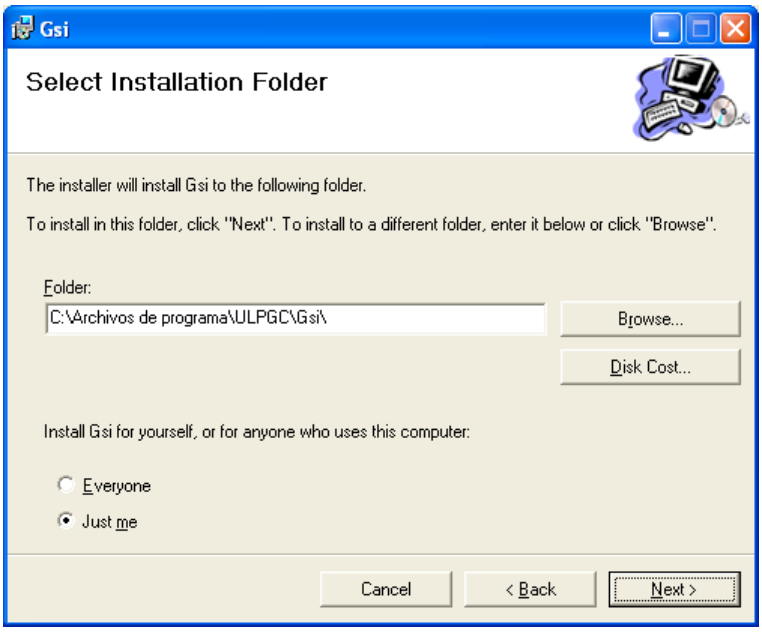

Gsi
Select Installation Folder
The installer will install Gsi to the following folder.
To install in this folder, click "Next". To install to a different folder, enter it below or click "Browse".
Folder:
C:\Archivos de programa\ULPGC\Gsi\
Browse...
Disk Cost...
Install Gsi for yourself, or for anyone who uses this computer:
Everyone
Just me
Cancel
< Back
Next >

Figure 2.4: Select Installation Folder

In the new screen that appears, we find additional information about the program, of interest to those who will use:

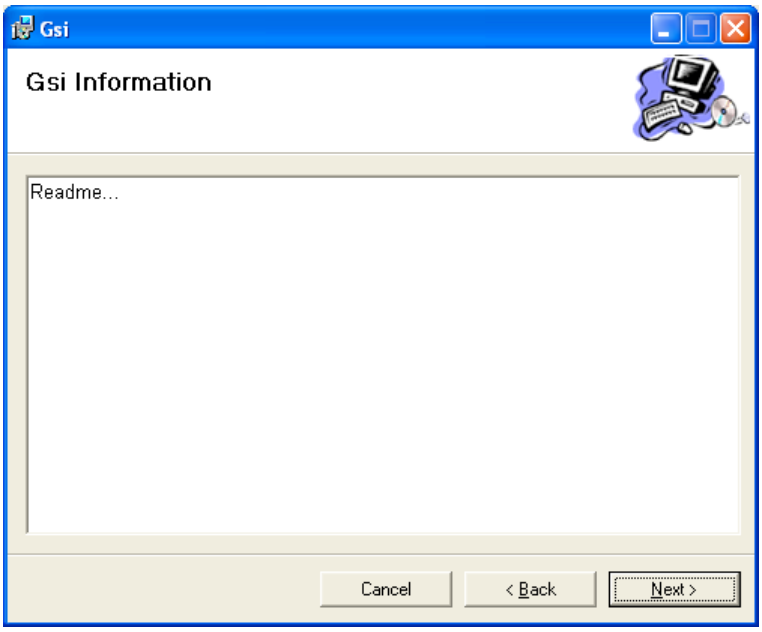



Figure 2.5: Readme

After all the previous steps, and all data collected, whether it is ready to begin installing the program. The new window requires us to confirm the installation of the program by clicking Next:

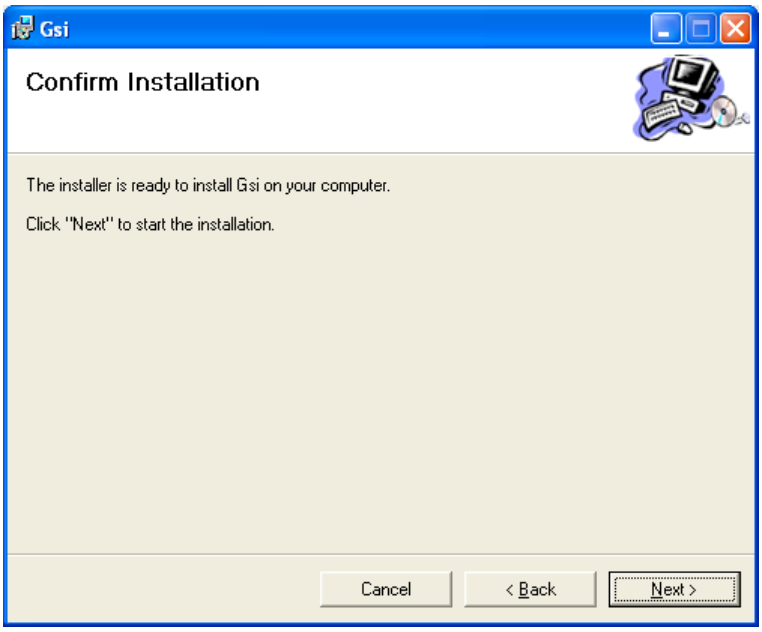

Gsi
Confirm Installation
The installer is ready to install Gsi on your computer.
Click "Next" to start the installation.
Cancel
< Back
Next >

Figure 2.6: Confirm Installation

After accepting the installation, we will see a progress bar will inform us of the status of the backup files needed by the program.

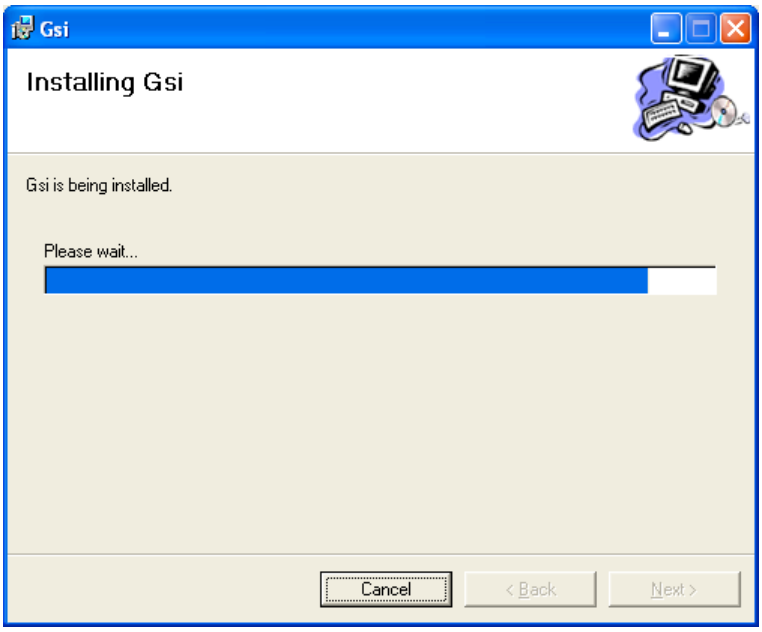



Figure 2.7: Installing

After copying files, we see a final screen informing that the installation is finished correctly. Is just click on Close to finish the wizard and provide for program installation finished.

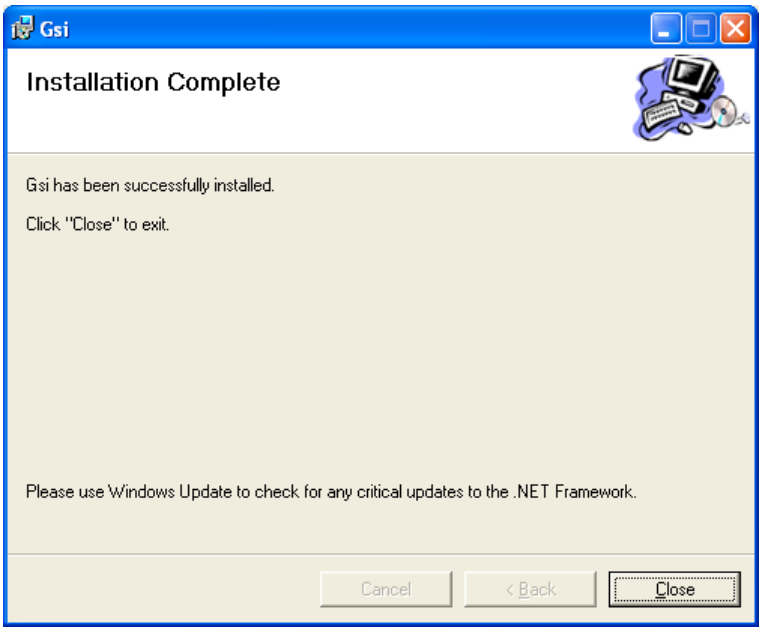



Figure 2.8: Installation Complete

## 2.2 Steps to incorporate the transportation program to the interface

After installing the software correctly, you can start to operate it for use in models prepared for the interface. To run the program simply double click the program icon located on the desktop:

Figure 2.9: Icon

After starting the program, see the main window:

Figure 2.10: Main Window

First you have to configure the program. Then you must specify the path to the GAMS executable to run models. In the interface is shown through **Configuration** ▷ **Programs**. You have to specify the paths to the executable gams.exe first case and optionally the path to Microsoft Excel (EXCEL.exe) to use such programs. Once the paths are selected by pressing the buttons on the left, they are saved by clicking OK.

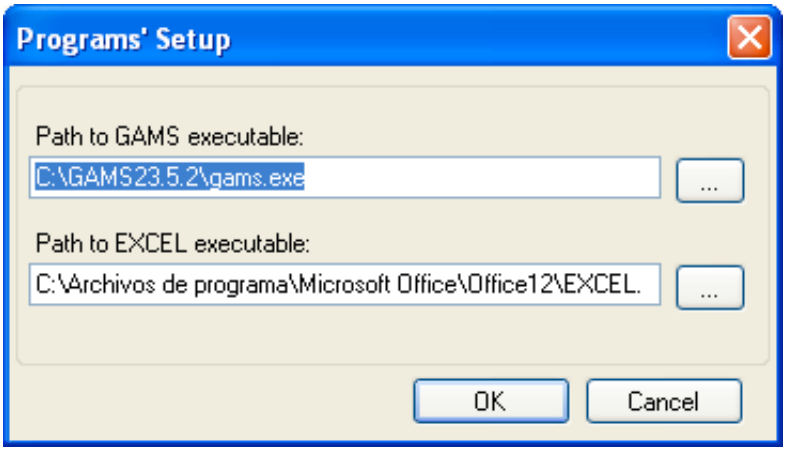



Figure 2.11: Programs' Paths

To add the transport model to the interface, you must have a folder (call Basic_Transport) all the files needed to function in the interface. The folder is in the root directory C:\ in this example. If you have these elements can be incorporated to the interface model from the option **Models** ▷ **Add Model**. In the window that appears fill in the details you request the interface: the name you want for the model (Transporte_Basico), the path where the files folder (C:\Basic_Transport\) and GAMS or BAT file from where it begins model run

(in this example trnsport0.gms). Finally, if you want to modify the files from the interface you can click on the "Read Only Model"to avoid unwanted changes. After entering all data is completed by clicking OK.

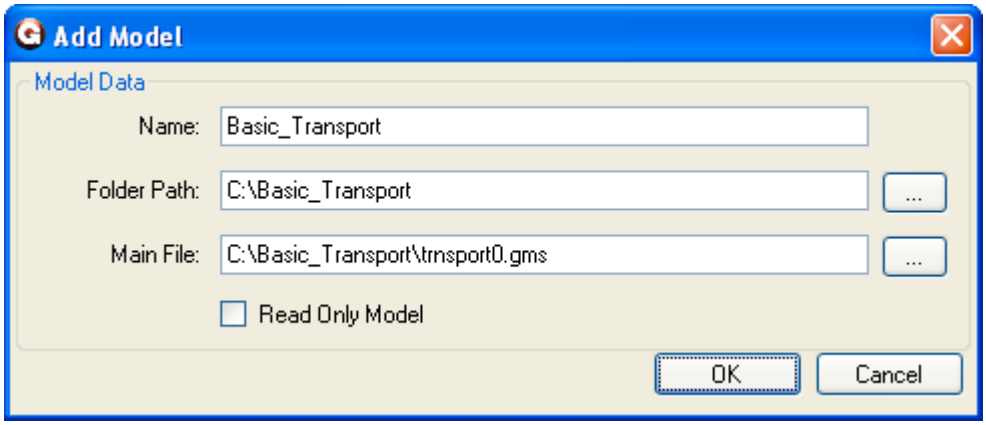



Figure 2.12: Add model data

After adding the model, you must specify to the interface the model to use. To do this, we turn to **Models** ▷ **Choose Model** and choose the newly added option: Basic_Transport.

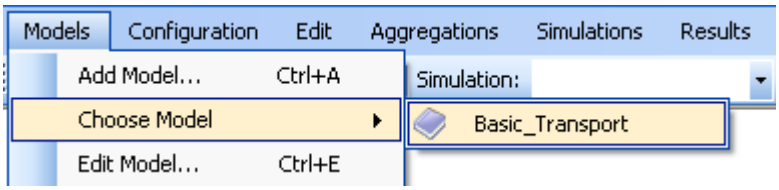



Figure 2.13: Choose model

From the status bar of the interface located at the bottom we see the model selected and the path where. This will facilitate the task of knowing which is the active approach in working with several.

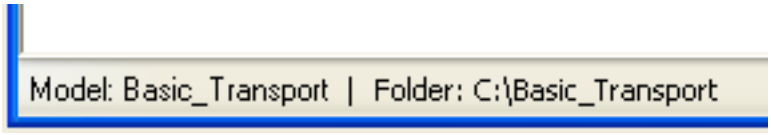



Figure 2.14: Selected model

Now it only remains to indicate that aggregation and simulation are selected to be used in the model. In the interface we can click the dropdown at the

top and choose among the various possibilities that arise. In the case of the simulations are performed similarly.

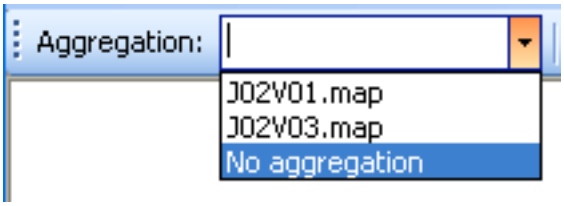



Figure 2.15: Choose aggregation

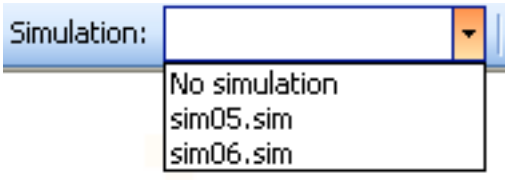



Figure 2.16: Choose simulation

When you have selected the aggregation and simulation to use, just enough to click on the button located to the right to run the model:

Figure 2.17: Run button

Now we just wait for it to run the model to visualize the results. While the model is running a window closing inform us once the model has been completed.

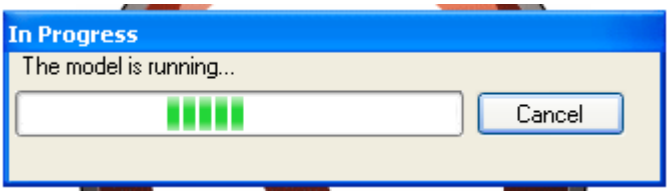



Figure 2.18: Running model

# Chapter 3

# Program Options

Over the next chapter will describe each of the features that hosts the program with a trip to your options menu and explaining each of its features and detailing those aspects of greatest interest.

## 3.1 Models

From the menu entry models are the possibilities related to the management of the program models and options to print text files, either code or results of executions. The program has a set of basic features that allow preview, page setup and printing of texts.

### 3.1.1 Add Model

Any model needs four parameters to create:

- Name: Name of the model (must be unique)
- Folder Path: Folder where you store all the files needed to run the model
- Main File: File from which to begin the execution of the model
- Read Only: Whether you can change the source code files of the model to modify its operation.

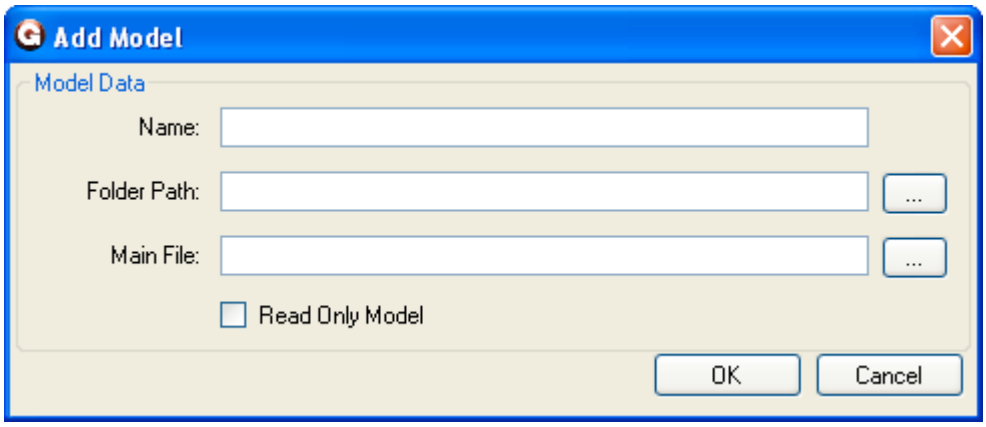



Figure 3.1: Add model

### 3.1.2 Choose Model

This section lists all models registered by the program. This is where you choose the model which will work during the session to use the program.

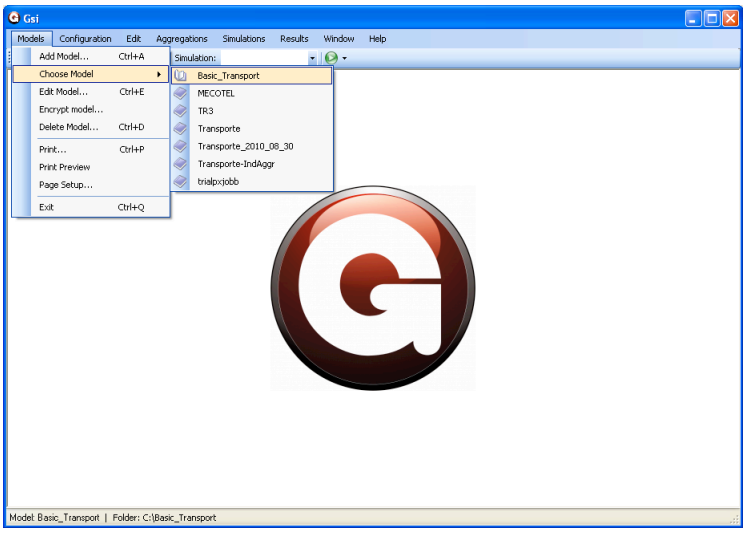



Figure 3.2: Choose model

### 3.1.3 Edit Model

From this option the user can see the main file of the model (or others) and edit it if you wish, provided they do not have checked the option "Read Only" when he added the model.

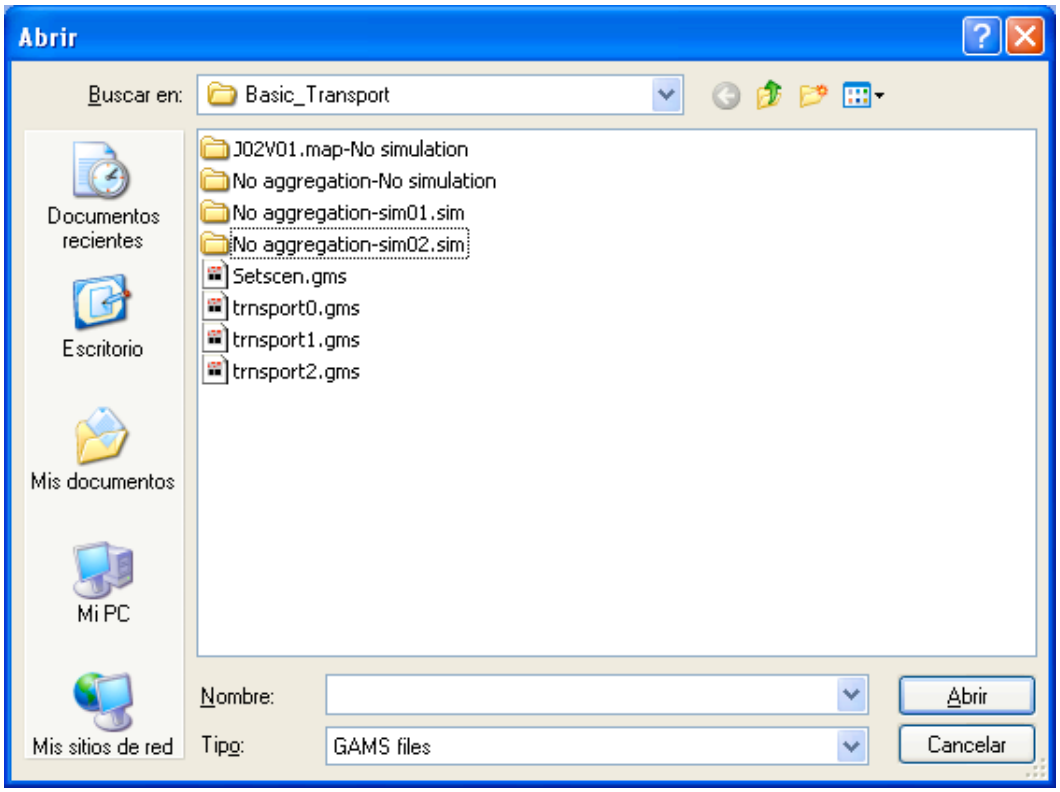



Figure 3.3: Edit model

### 3.1.4 Delete Model

From this form it is possible to remove previously added models in the interface. There are two possibilities, the first pass by simply remove the entry from the program, and the second, also to remove the program entry, delete the contents of the directory associated with the model.

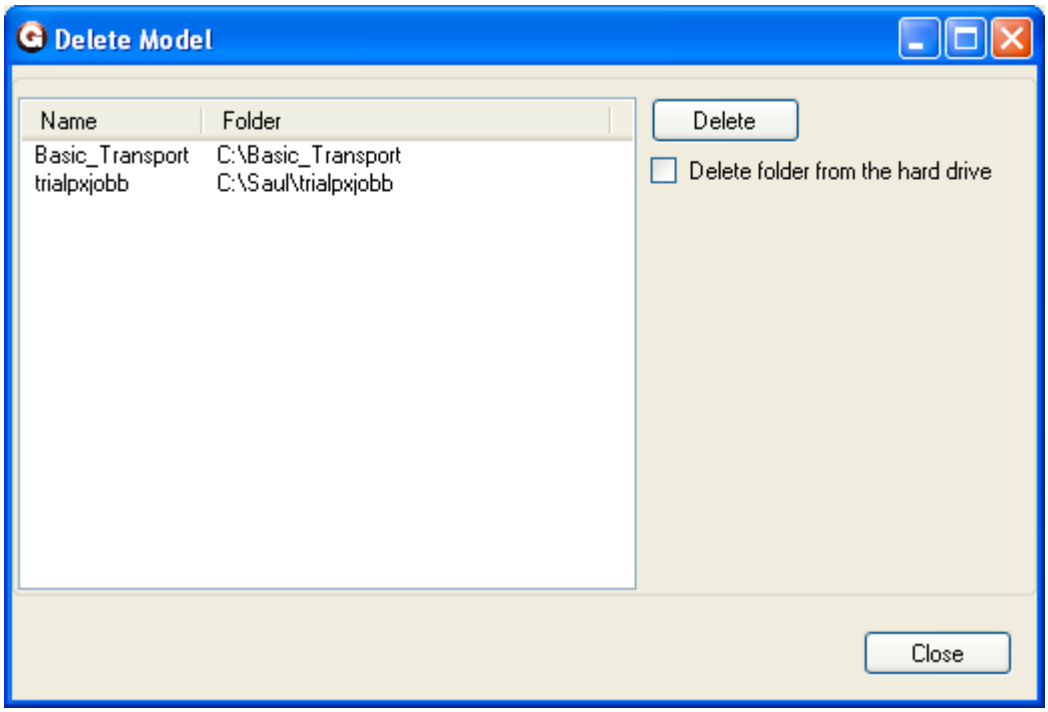



Figure 3.4: Delete model

### 3.1.5 Print

From this option the user can print text files such as the code of the model chosen, or the results and records returned by the model after running. In the figure below can be seen as not only possible to indicate the printer you want to print, but as you can also choose the page range is required and the number of copies.

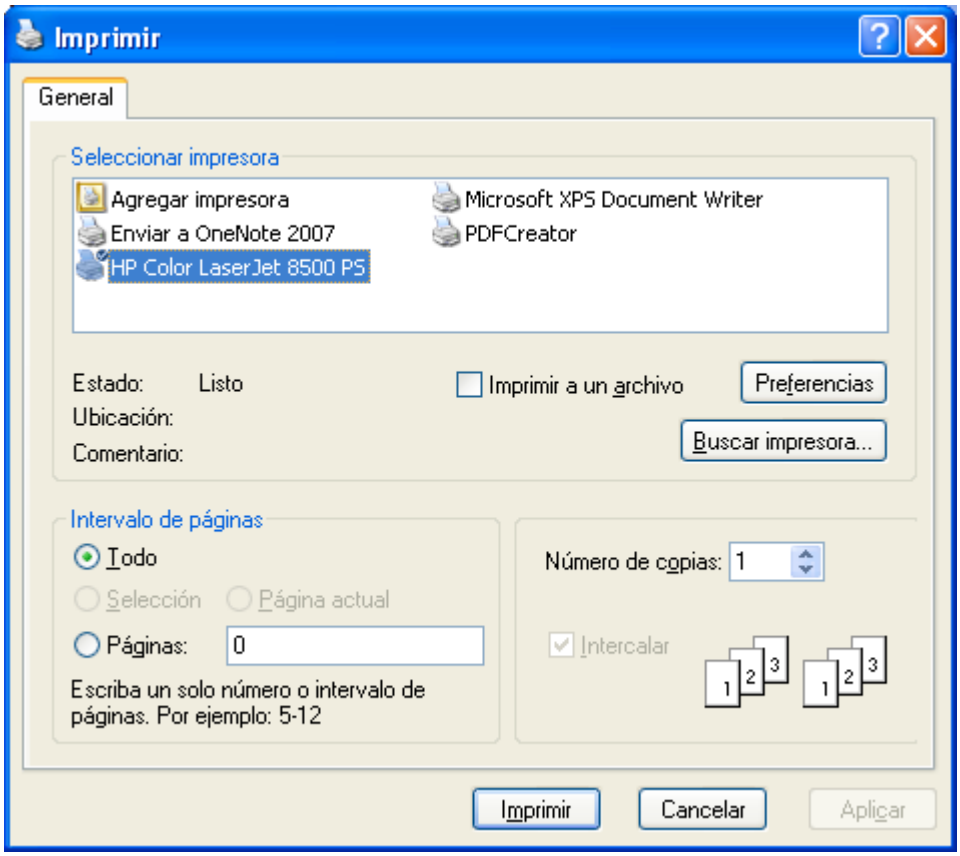



Figure 3.5: Print

### 3.1.6 Print Preview

Through the second option is possible to visualize how it would print using the print options selected. You can also change the number of pages to view and zoom the text. From here you can print the text directly.

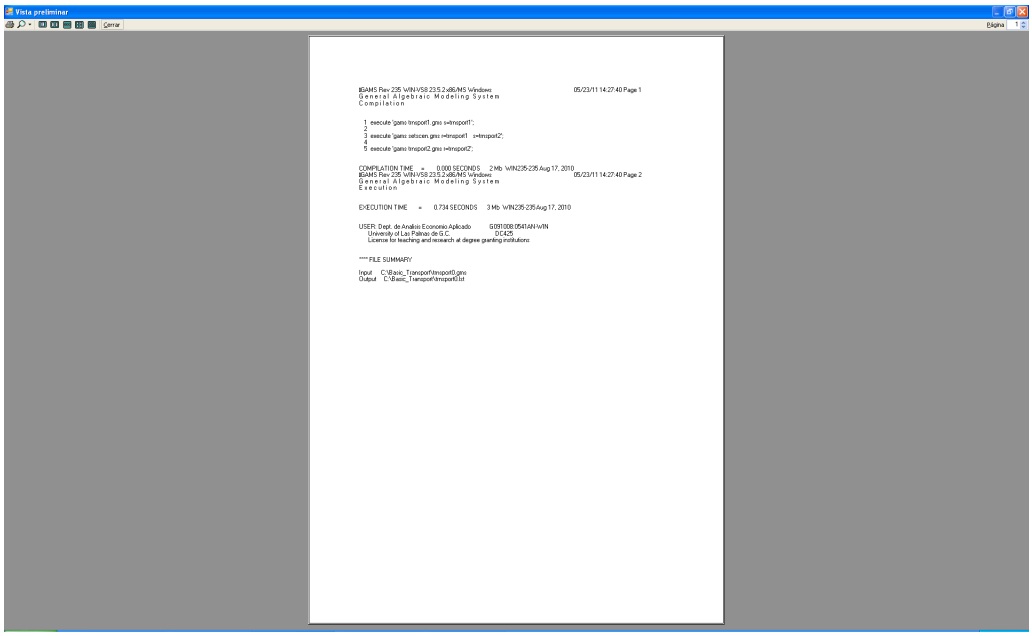

Vista preliminar
Cerrar
Página
IBGAMS Rev 235 WIN-VS8 23.5.2 x86/MS Windows 05/23/11 14:27:40 Page 1
General Algebraic Modeling System
Compilation
1 execute 'gams trnsport1.gms s=trnsport1';
2
3 execute 'gams setcses.gms s=trnsport1 s=trnsport2';
4
5 execute 'gams trnsport2.gms s=trnsport2';
COMPILATION TIME = 0.000 SECONDS 2 Mb WIN235-235 Aug 17, 2010
IBGAMS Rev 235 WIN-VS8 23.5.2 x86/MS Windows 05/23/11 14:27:40 Page 2
General Algebraic Modeling System
Execution
EXECUTION TIME = 0.734 SECONDS 3 Mb WIN235-235 Aug 17, 2010
USER: Dept. de Analisis Economico Aplicado S091008:0541AN-WIN
University of Las Palmas de G.C. DCA25
License for teaching and research at degree granting institutions
**** FILE SUMMARY
Input C:\Basic_Transport\trnsport0.gms
Output C:\Basic_Transport\trnsport0.lst

Figure 3.6: Print preview

### 3.1.7 Page Setup

From this form you can change the following print options: paper size, orientation and margins for each of the edges of the paper.

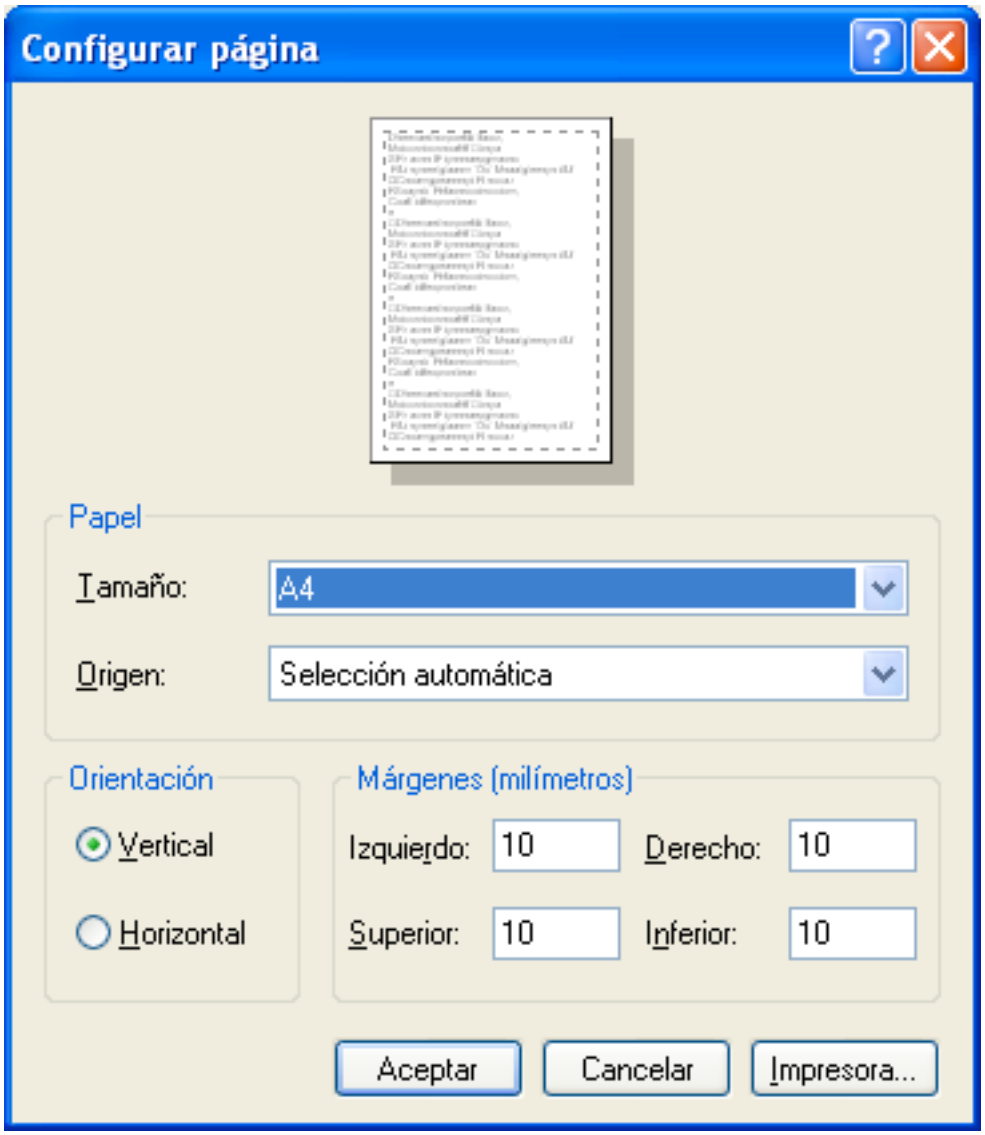



Figure 3.7: Page setup

### 3.1.8 Exit

To exit the program.

## 3.2 Configuration

### 3.2.1 Programs

This section specifies the path to the executable GAMS and Microsoft Excel if necessary.

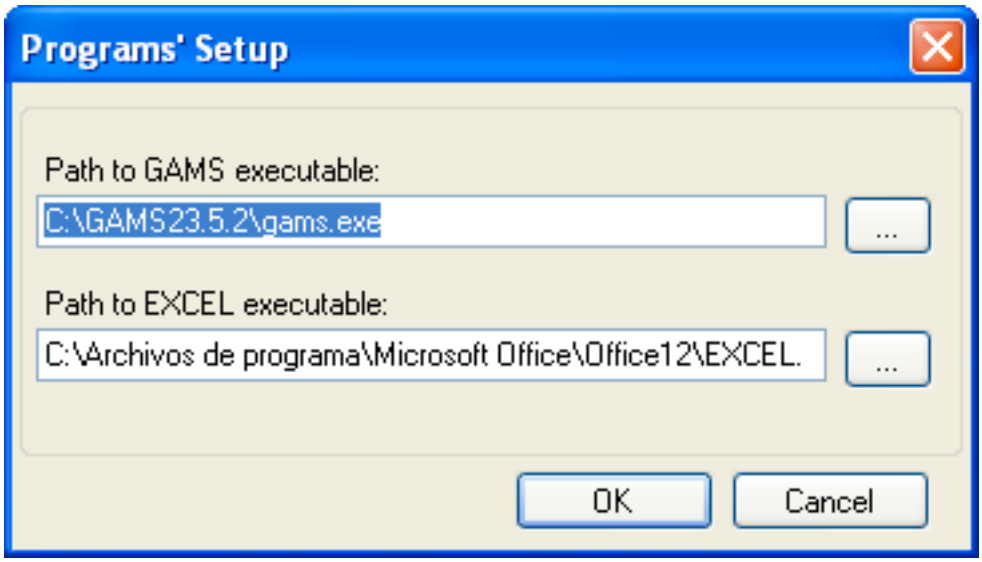



Figure 3.8: Programs' Paths

### 3.2.2 Number of Images

This section indicates how many images you want to see when the results show graphics.

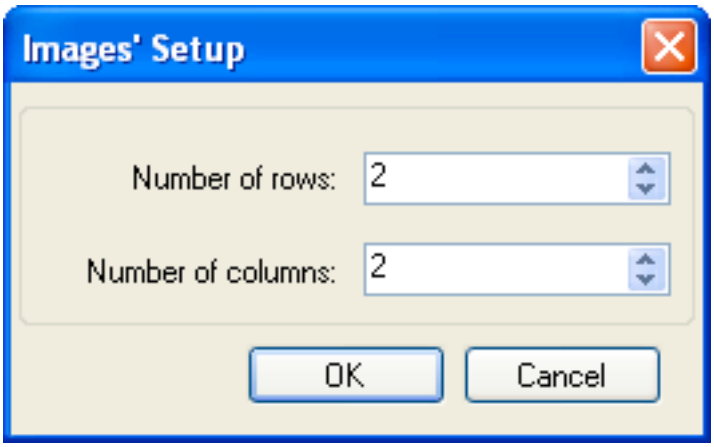



Figure 3.9: Number of images

## 3.3 Edit

### 3.3.1 Find

From this option you can search for text strings in files. Searches the string in the file requested is currently selected. The search string can be up or down within the meaning of the text, and allows the possibility of distinguishing between uppercase and lowercase.

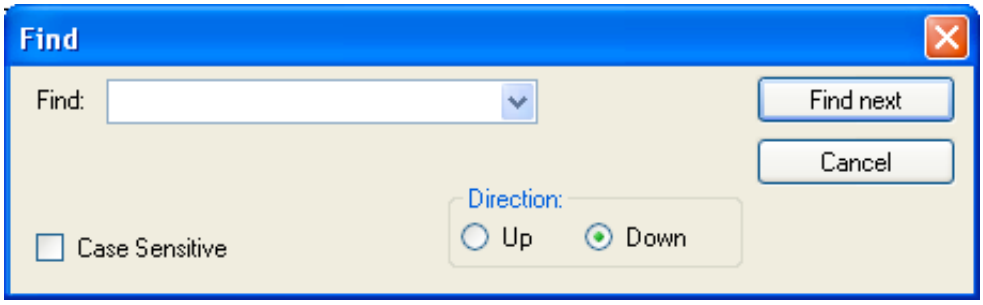



Figure 3.10: Find

### 3.3.2 Find Next

Repeat the search started from the previous option to find (if any) the next occurrence of the string with the same options that were introduced in the form.

### 3.3.3 Find Error

This option is recommended to use for files. lst of GAMS displayed through the program. This option searches for the specific string "****" where GAMS indicates the result of model execution and the errors if any.

### 3.3.4 Font

From this menu option the user can change the font of the text document you are viewing at that time. You can change the font, style, size, and apply various effects as seen in the figure below:

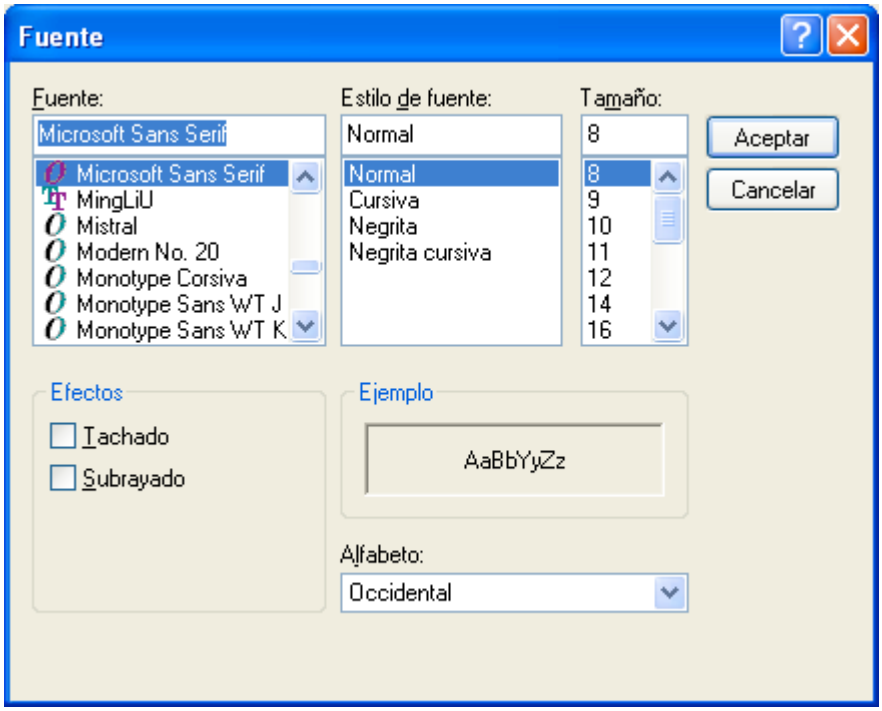



Figure 3.11: Font

## 3.4 Aggregations

From the Data entry are the options regarding the management of aggregations. You can create simple and composite aggregations, modify and delete existing aggregations that are no longer necessary.

### 3.4.1 New Simple Aggregation

Through this you can create simple aggregations, which will have a. smap. First you have to choose the index to add and then the number of elements that make up the aggregate. After entering both information, click on the button to create:

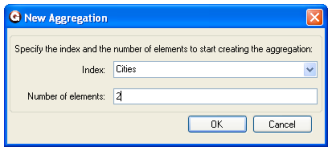



Figure 3.12: Start screen

After it appears to the right elements that form the aggregation. The figure looks like there are two elements: "City 1 "and "City 2", but names can be changed if the user wishes by clicking them and entering that is most suitable.

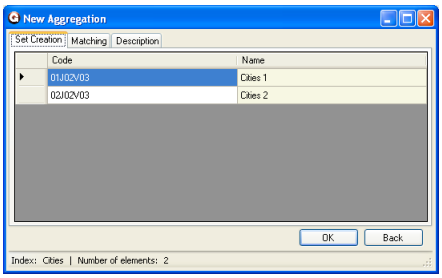



Figure 3.13: Set

Through the **Matching** tab perform the matching between the unbundled elements and new elements of aggregation:

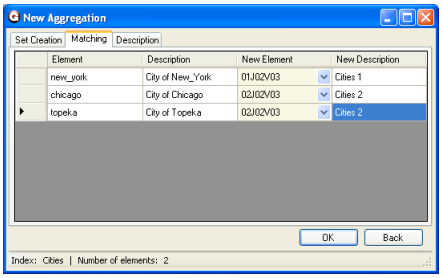



Figure 3.14: Mapping

Besides, you can add the resulting file a description of the characteristics of the aggregation created:

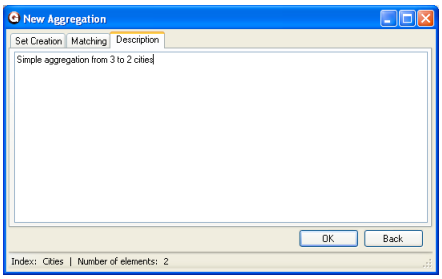



Figure 3.15: Description

### 3.4.2 New Composite Aggregation

Through this option creates composite aggregations whose files have a. map extension. In this case, simply choose a simple aggregation for each index:

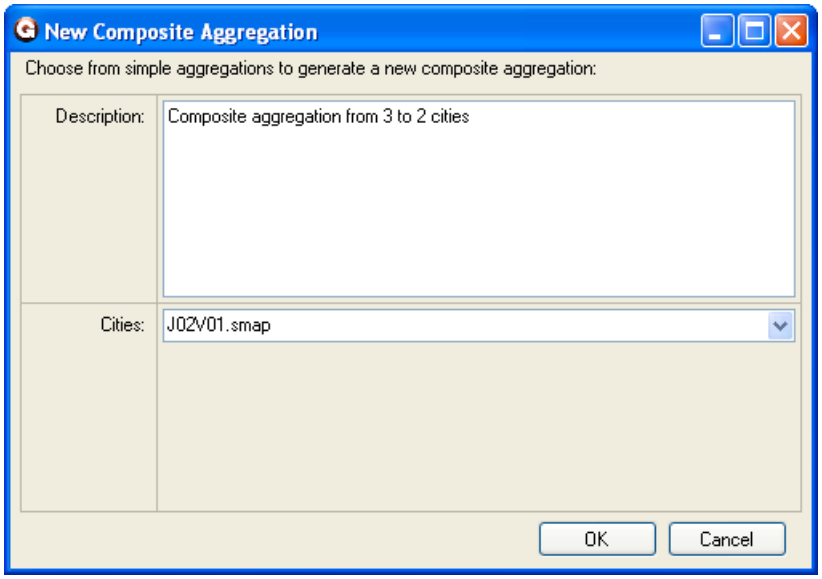



Figure 3.16: New composite aggregation

### 3.4.3 Edit Aggregations

This option will display all aggregations created for the model, both single and composite. In addition it will also be possible to modify them. When loading the form, appear to the left of aggregations in the model. Clicking on any of them, will be shown on the right side of the form as set created, as the mapping done. First you can see the set of two elements:

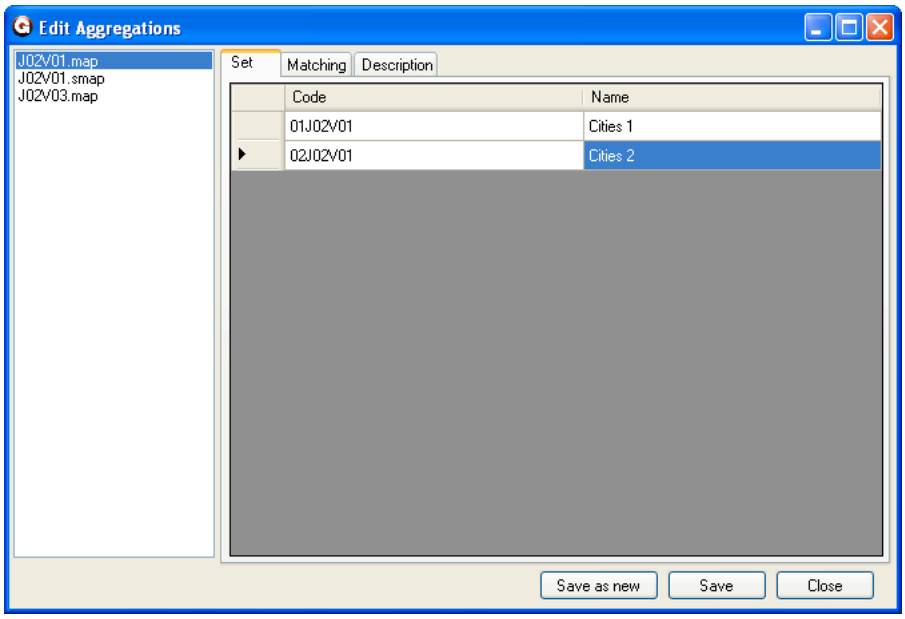



Figure 3.17: Set

On the Matching tab you can view and modify the mapping done:

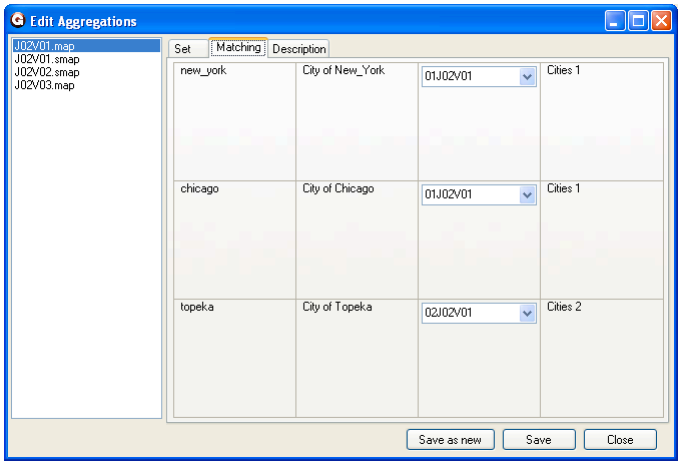



Figure 3.18: Mapping

And the same with the description:

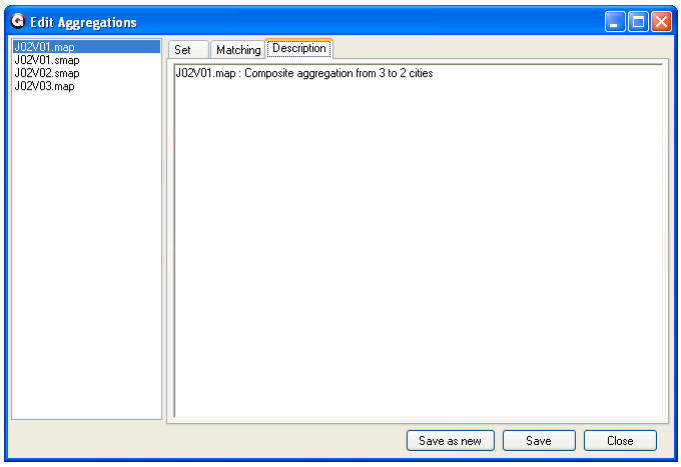



Figure 3.19: Descripción

### 3.4.4 Delete Aggregations

From this menu option displays all created aggregations, which choose to delete the program (which also erased the hard disk). You can delete a single or more than once by choosing:

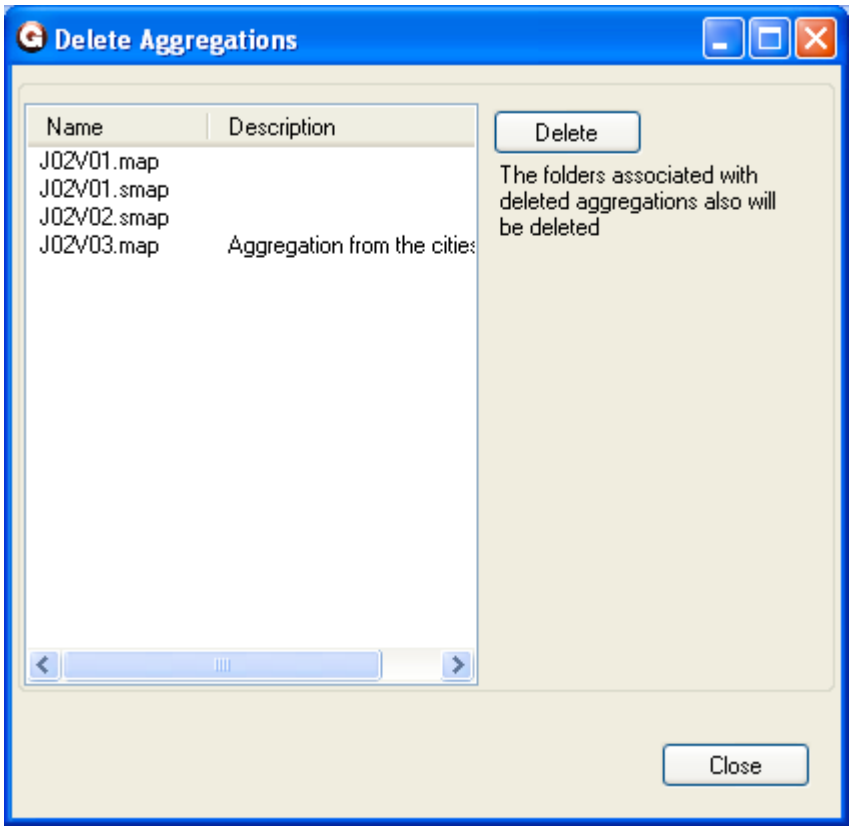



Figure 3.20: Delete aggregations

## 3.5 Simulations

### 3.5.1 New Simulation

From this menu option will create the new simulations for the model. That is, it will give values to all variables of the same for both variables such as the alphanumeric number. All variables have a default value, so you only need to modify as needed. If at any time you want to reset the values of all variables, it can be done from the button. First we show the scalar, the numeric type. For these variables need to specify the quantity to be within minimum and maximum limits. For non-numeric scalar can only choose a value from those available.

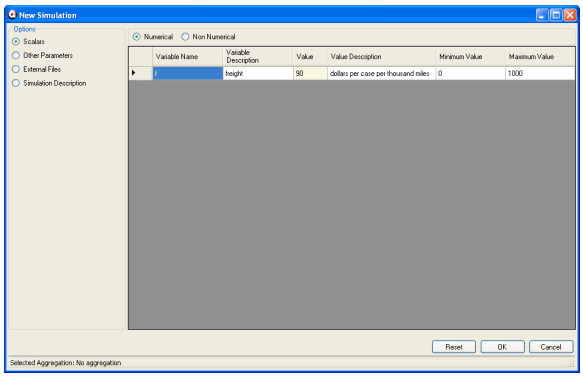



Figure 3.21: Scalars

Other parameters are multidimensional numerical variables (from 1 to 4 dimensions). For each variable there is a chart displayed rates and descriptions, and a column to enter the value:

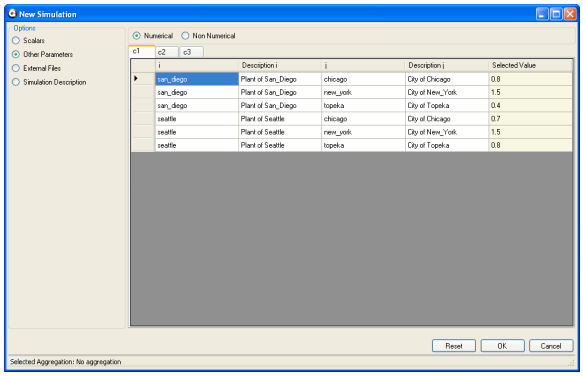



Figure 3.22: Parameters

You can also add a description to the simulation indicating the characteristics of it. This makes it easier to identify which is the function of the simulation:

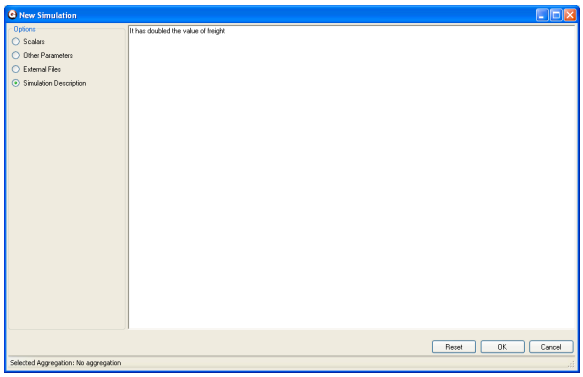



Figure 3.23: Description

### 3.5.2 Edit Simulations

In this section you can view all the simulations that have been created previously, and the values that were given to each variable at the time that created the simulation. Furthermore, a simulation can be updated by modifying existing values, or create a new one from an existing one. To the left of the form lists all the simulations and previously created:

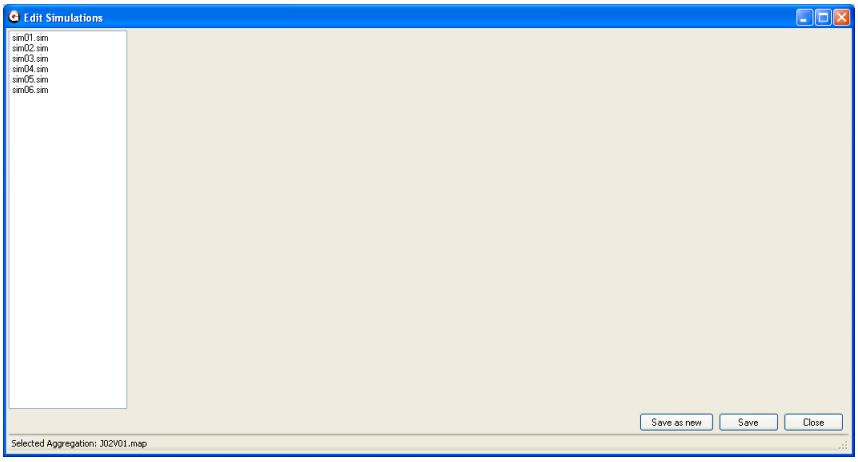



Figure 3.24: Start screen

Once chosen one of the list shows all the variables of the simulation with their corresponding values. Whether scalar:

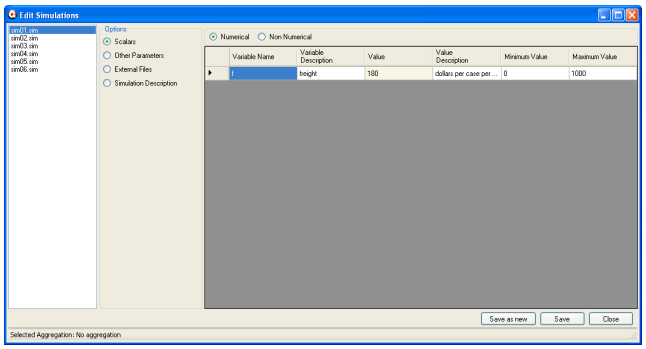



Figure 3.25: Scalars

Or multidimensional:

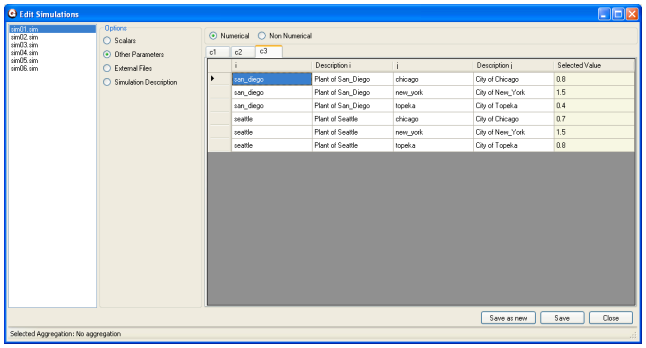



Figure 3.26: Parameters

It also shows the description of aggregation:

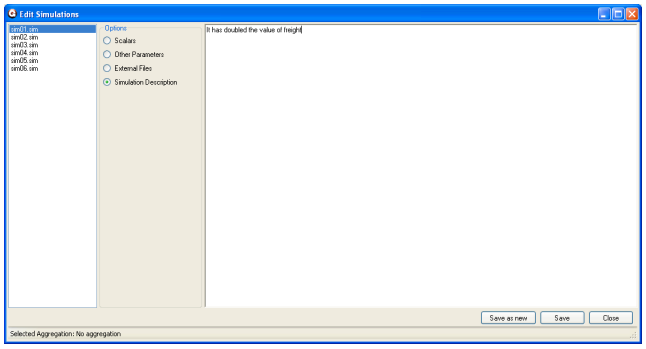



Figure 3.27: Description

Once aggregation changed with the new values that are desired by clicking

on the **Save** button updates the simulation. If you click **Save As New** will create a new simulation that will appear in the list of simulations.

### 3.5.3 Delete Simulations

From this option the user can delete those simulations that no longer interest you. You can choose one or more to remove them at once:

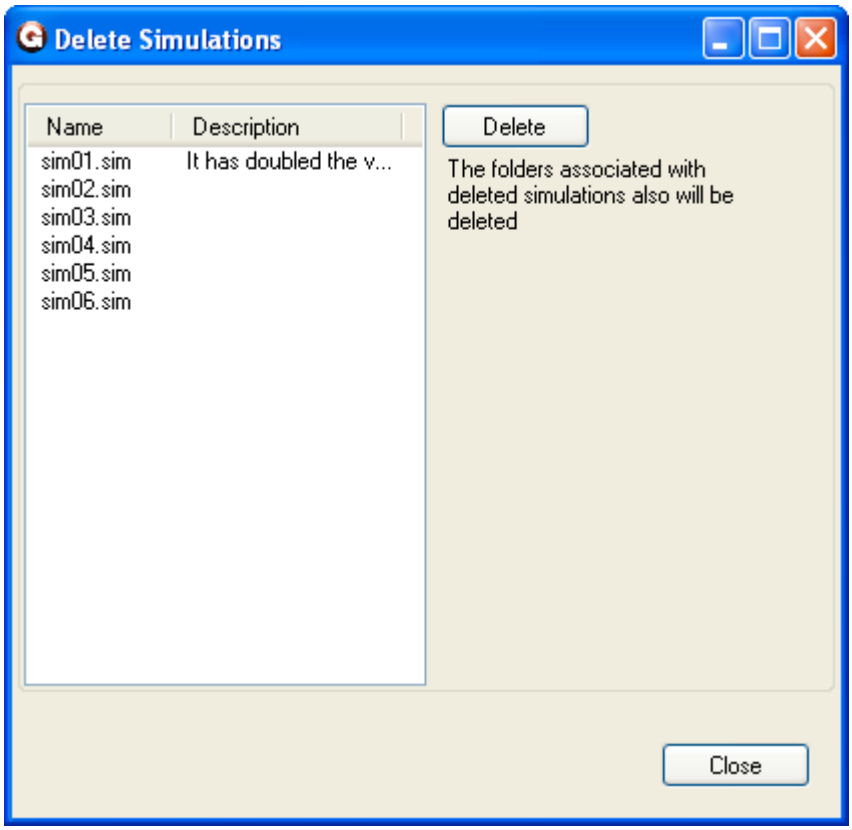



Figure 3.28: Delete simulations

## 3.6 Results

### 3.6.1 Text

This section will allow the user to view the different results of the type of text file generated by the model, whether the output values of variables (. lst) or log files (. log). All this is possible from this option. As can be seen in the figure below you can select more than one at a time:

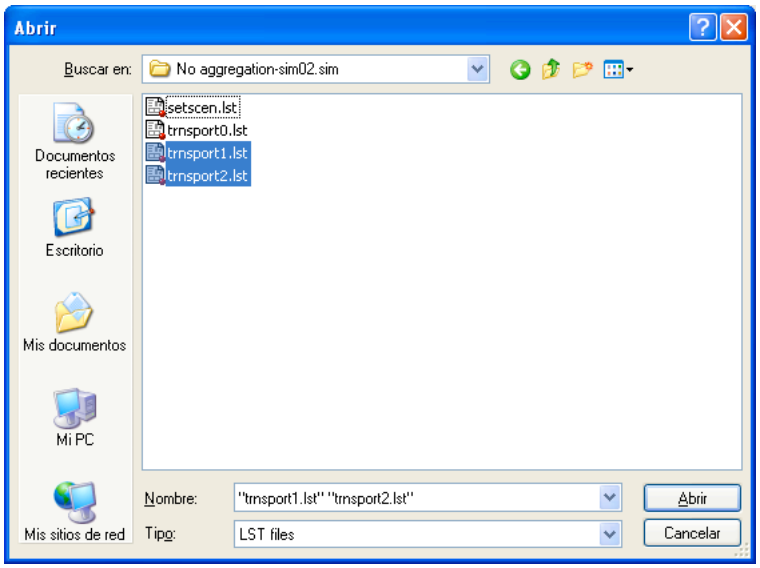



Figure 3.29: Choosing files

to open them at once:

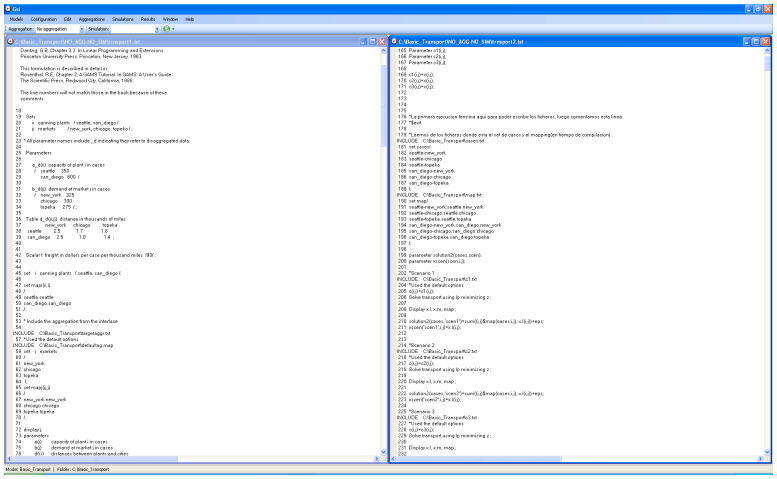


Figure 3.30: Results display

### 3.6.2 GDX-Charts

If you click on Create Chart you will see the window that will allow us to create charts from the results generated by the model after having executed a concrete aggregate and simulation. This requires that the model generates a file gdx with all the needed symbols .

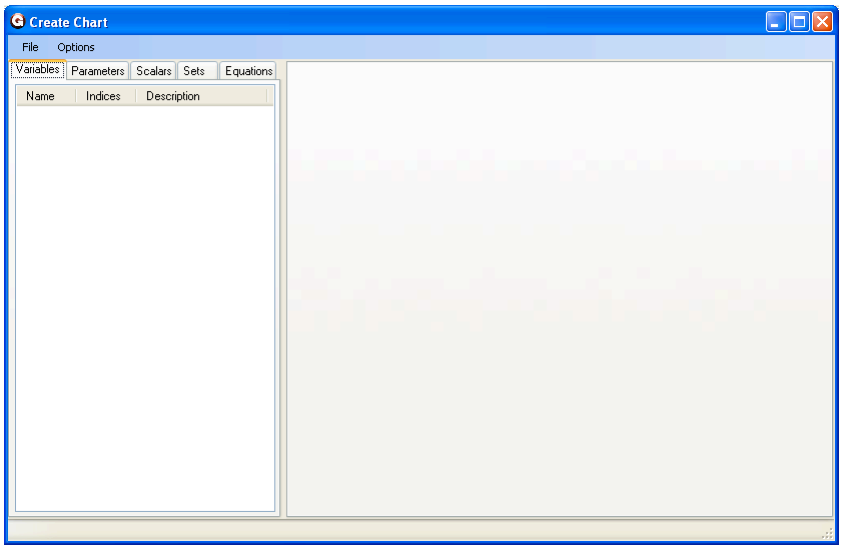



Figure 3.31: Create Chart

Then, from File ▷ Open GDX we can select the GDX file that suits us. If we have ran the model previously, the application will go to the corresponding directory to the selected aggregation and simulation. If not, the directory will be the corresponding to the model.

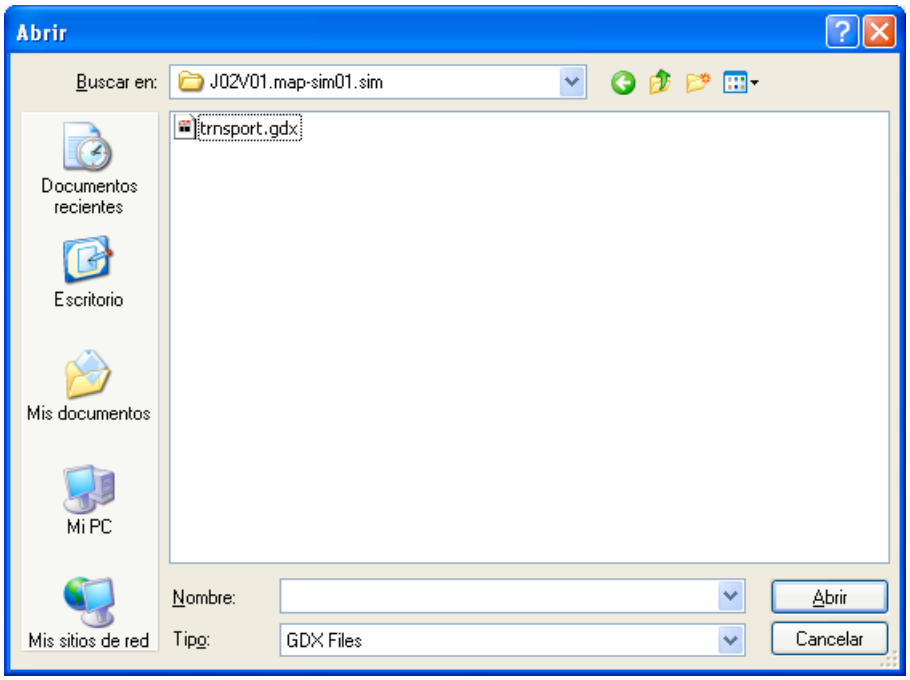



Figure 3.32: Open GDX

After opening the GDX, the window displays on the left side the loaded symbols (sets, parameters, scalars, variables and equations) and the bottom of the window shows the loaded file:

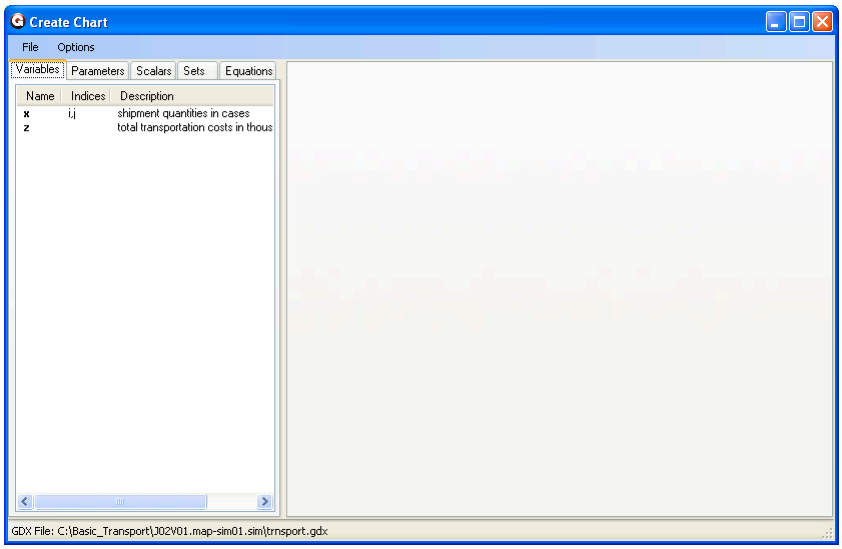



Figure 3.33: Loaded symbols

Double-clicking on the name of a symbol will appear on the right in a new tab a table with the values of the symbol. The columns show the indices that make up if any:

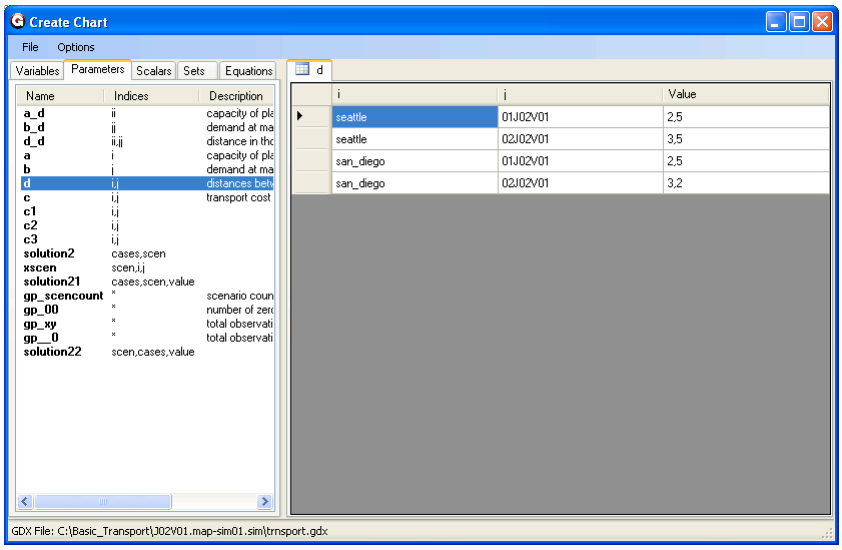



Figure 3.34: Selected symbol

To generate a chart from the selected symbol just press the right mouse button on the table with the values or its corresponding entry in the symbol list

and select the desired chart type:

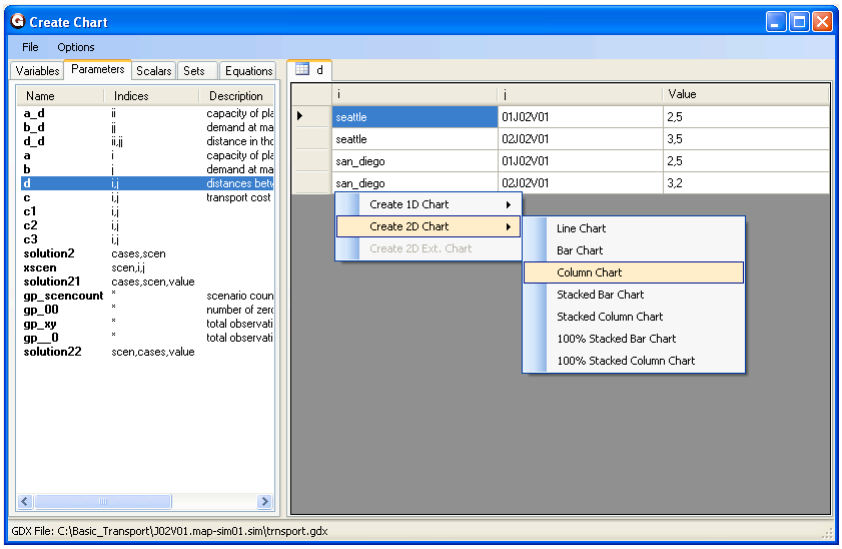



Figure 3.35: Select chart

After that it will be created the chart in a new tab (next to the data symbol if any). This new tab will be entitled "Chart d [2D Column]" indicating the name of the symbol and the type of chart generated. The resulting chart is as follows:

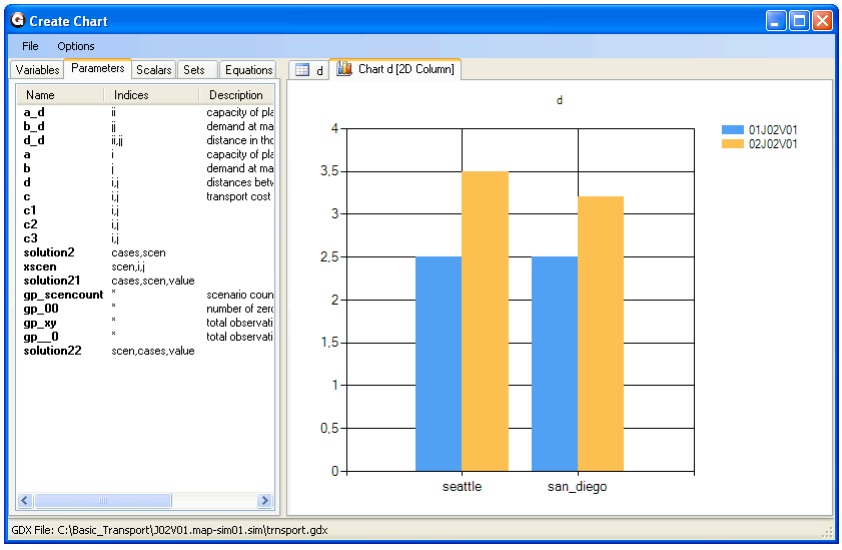
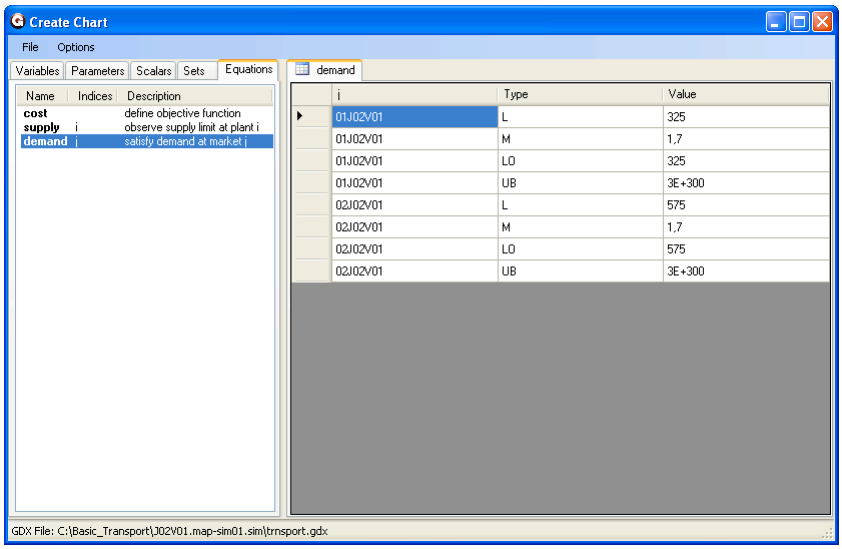



Figure 3.36: Generated chart

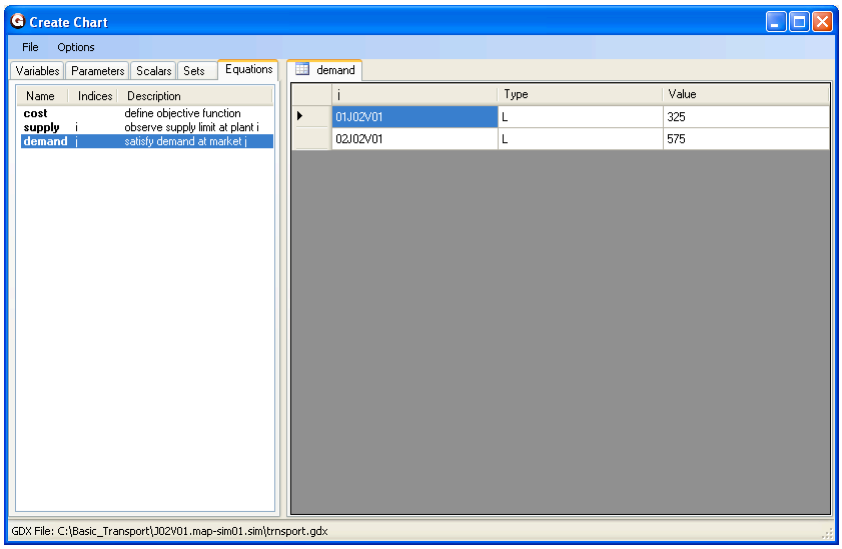
NOTE: Those variables and equations containing infinite values these will be shown as zeros on the created charts.

#### 3.6.2.1 Show L Values Only

In the case of variables and equations, the program displays all types of values for these symbols. In the event that only want to display values of type L you must choose the Options ▷ Show L Values Only. The table is updated to display only these values:




(a) Original table




(b) Updated table

Figure 3.37: Show L values

#### 3.6.2.2 Filter Data

The program allows to filter data from the table associated with a particular symbol. With the table in the selected tab, select the menu item Options ▷ Filter Data. To window to filter data is:

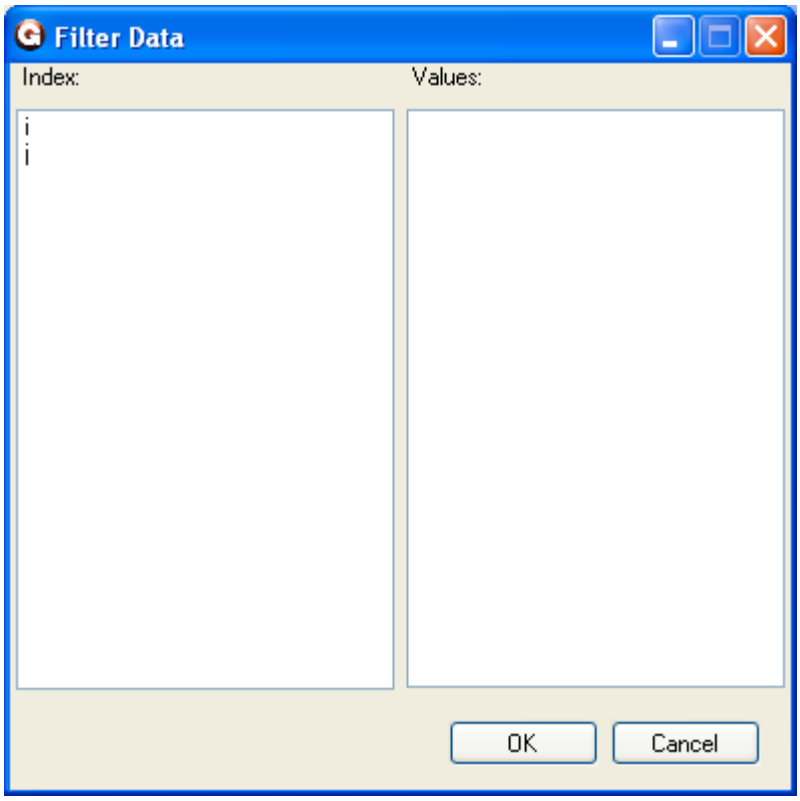



Figure 3.38: Filter data

Select one of the indices and we see on the right side the possible values for this index:

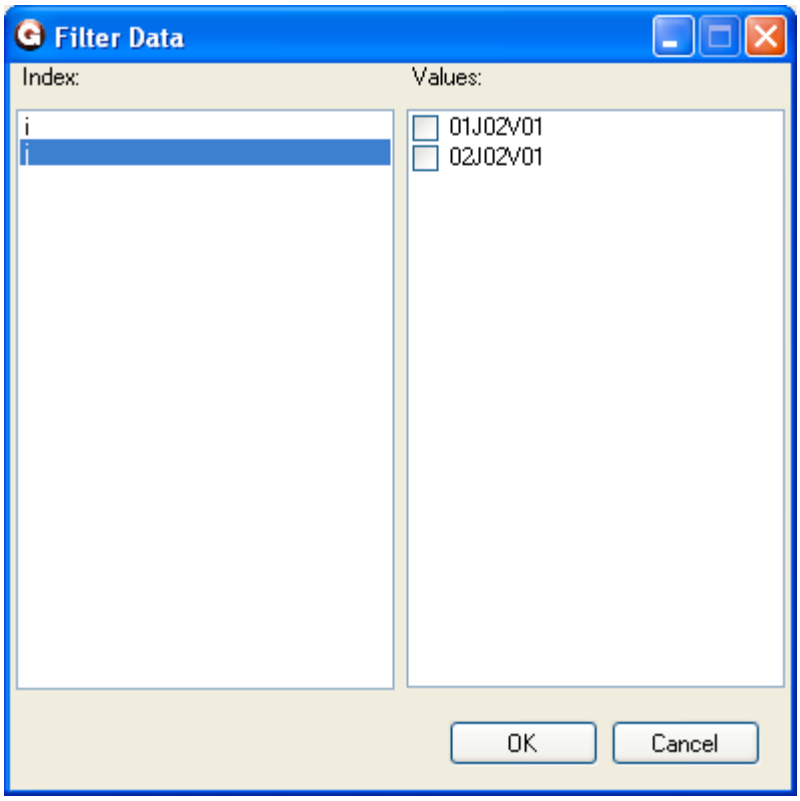



Figure 3.39: Filter data - Index values

Choose one of the values (or more) and click OK. This creates a new tab with the filtered table according to the query. The new tab will have as tooltip text the query for information:

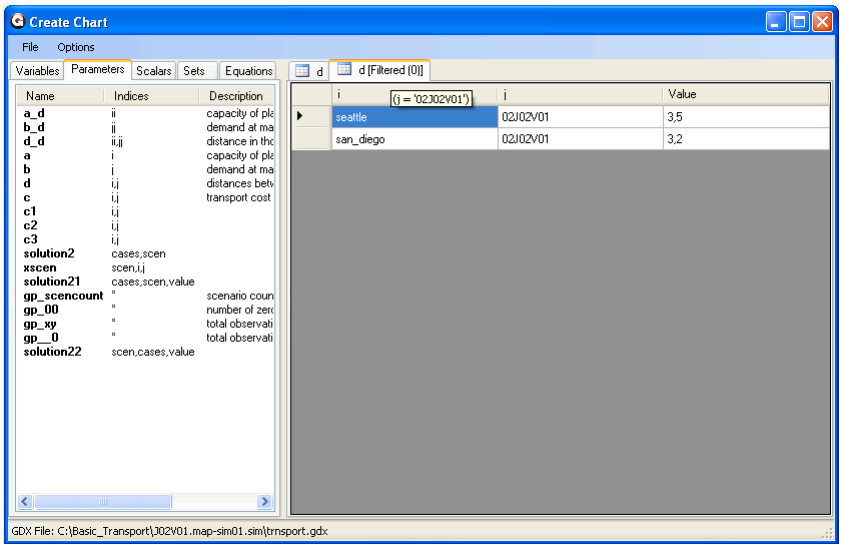



Figure 3.40: Filtered table

The query may include multiple indexes and even with the filtered table is possible make new charts using the way explained above.

#### 3.6.2.3 Transform Table

Given a table associated with a symbol which has 3 or more indices, the application creates a new table from the original specifying which indices are to each axis (X and Y). From the following table:

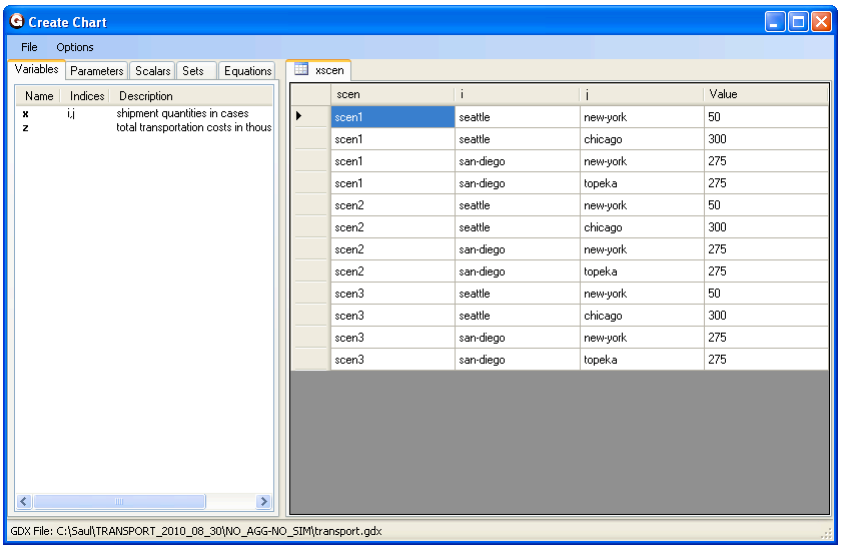
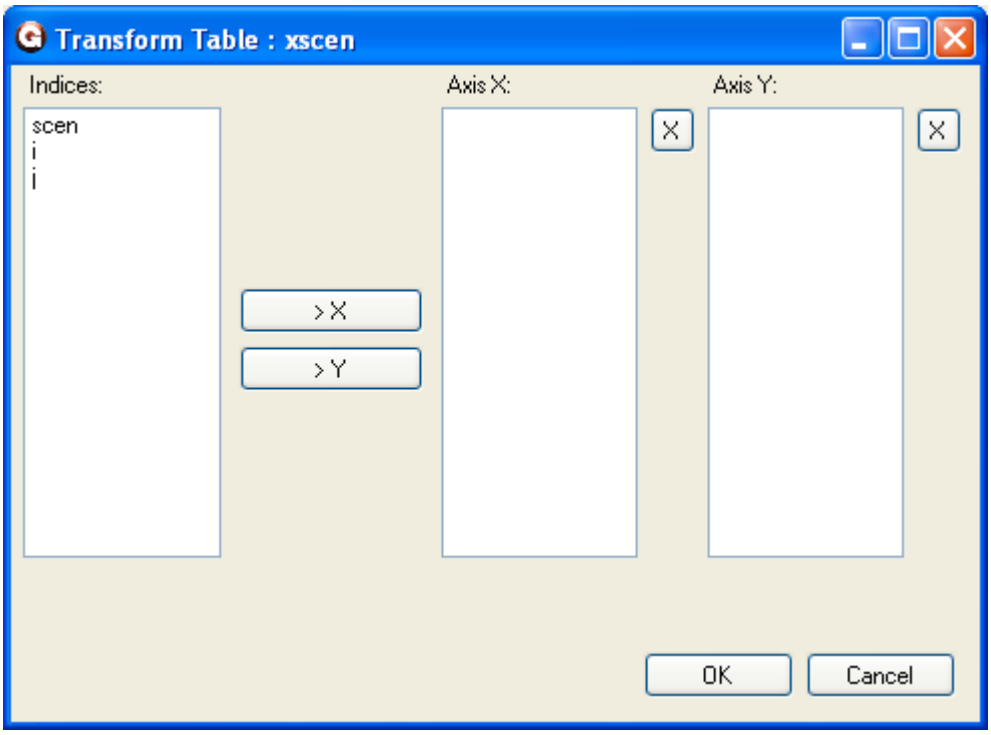
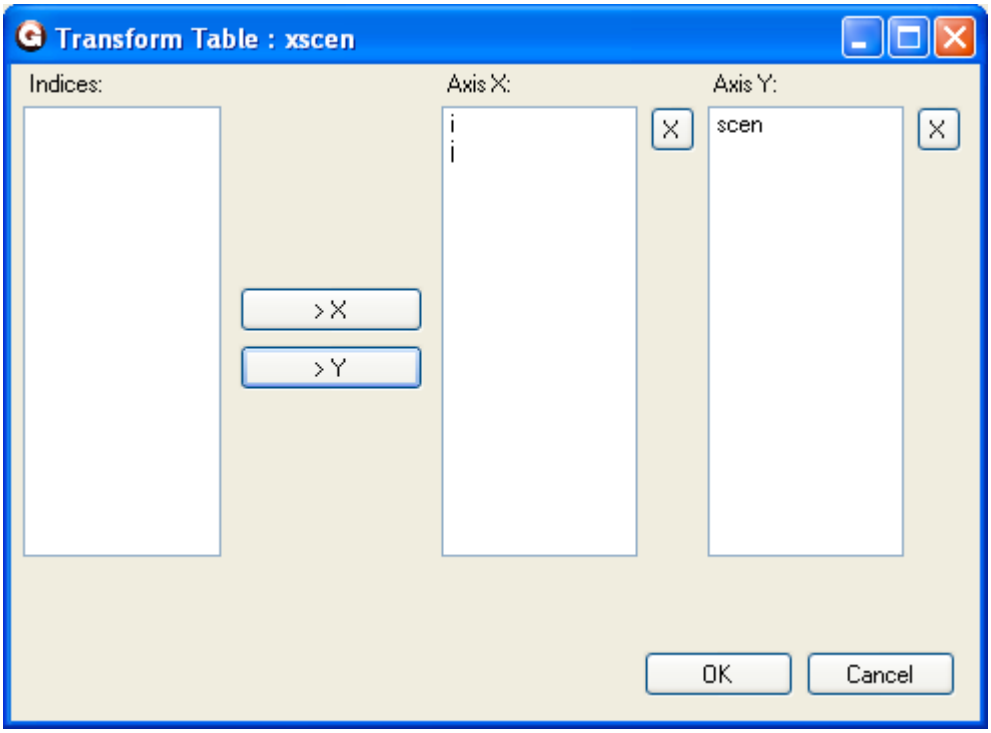



Figure 3.41: Original Table

Select Options ▷ Transform Table and we will see a window like the one shown below to specify that indices are to each axis:




(a)




(b)

Figure 3.42: Select Indices

For example, we can select the indices **i** and **j** and by clicking on the "> X" button we can see how these indices are removed from the list on the left and placed on the list of axis X. It operates similarly with the index **scen** to put it on the Y axis. Pressing the button "X", the selected indices from that list are back to the Indices list. After pressing OK, we see the result:

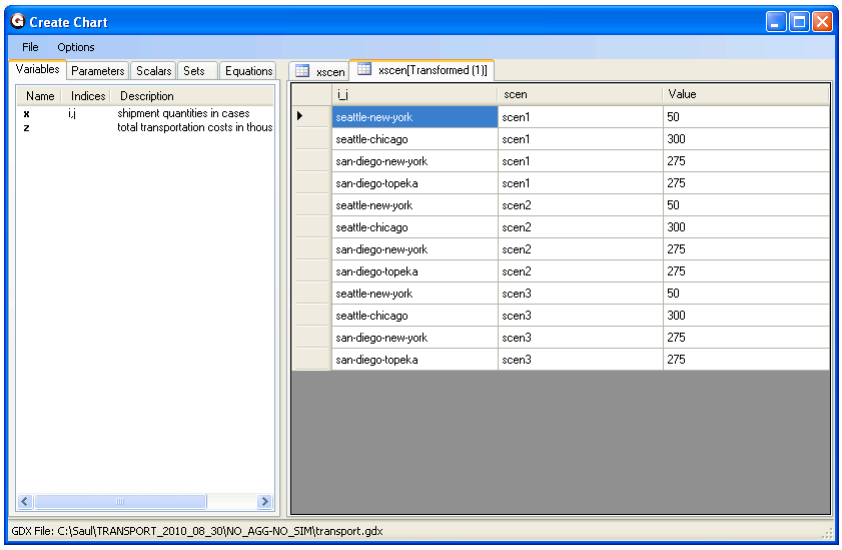



Figure 3.43: Transformed Table

Once the table is transformed, you can create a chart in the usual way to view data:

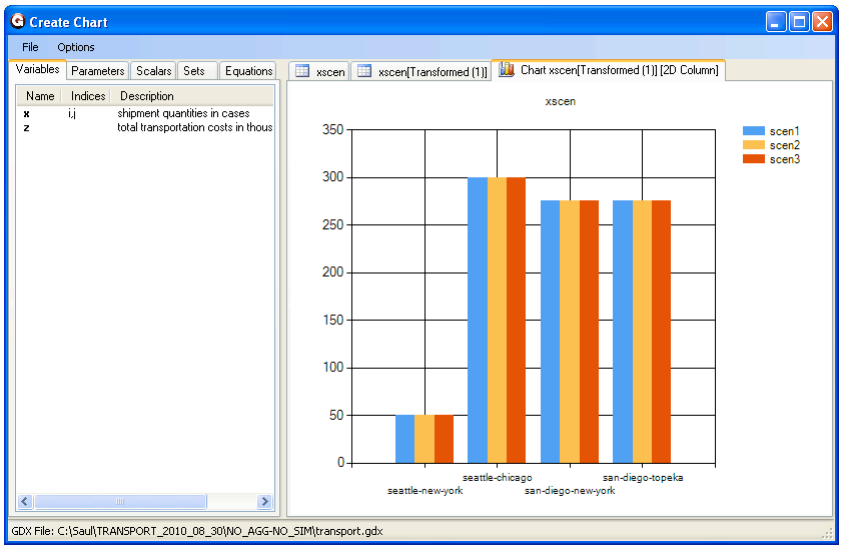
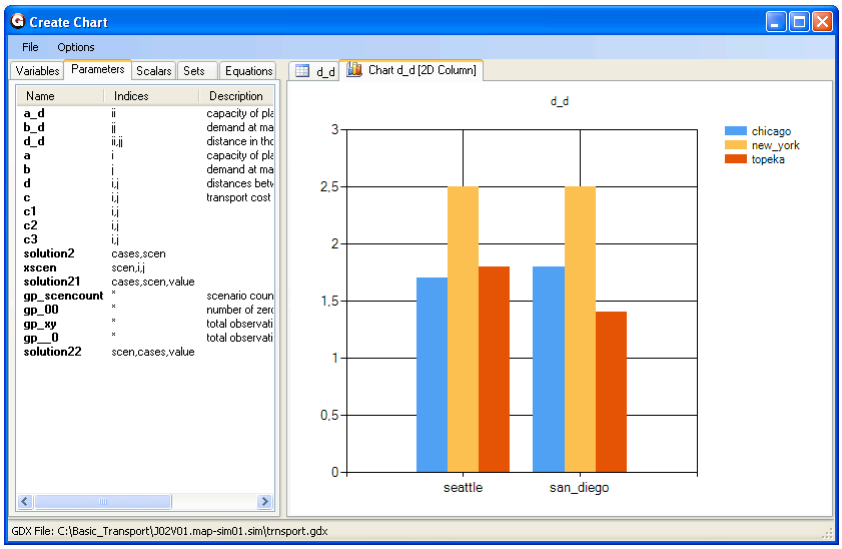


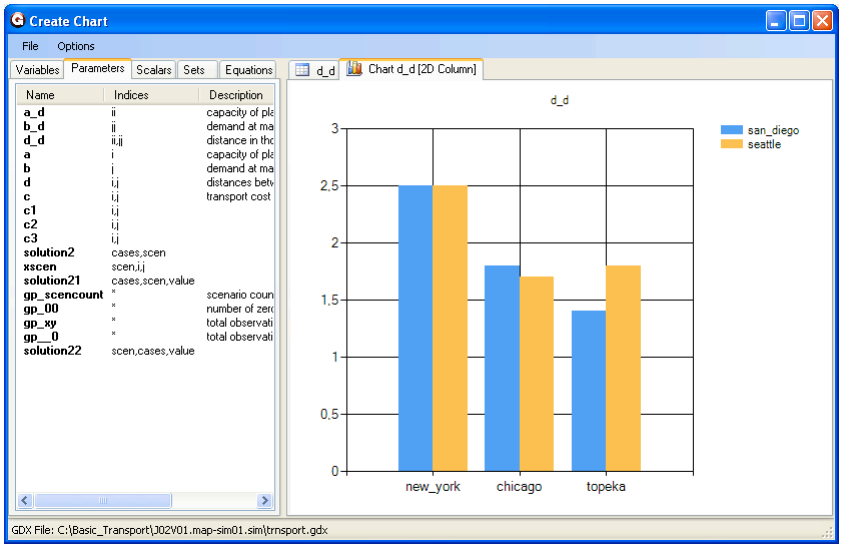

Figure 3.44: Chart of the Transformed Table

#### 3.6.2.4 Swap Indices

Given a chart in two dimensions and having it in the active tab you can swap indices of the axes X and Y and see the new resulting chart. For this select the option menu Options -> Swap Indices. The chart is updated to show the result:




(a) Original chart




(b) Chart with swapped indices

Figure 3.45: Swap indices

The entry menu will be marked to indicate that the chart has swapped indices. This option can be run with a swapped indices chart to re-let the chart in its original state.

#### 3.6.2.5 Configure chart

The application allows to change certain aspects of the appearance of charts. To change the appearance of a chart that we have selected in the current tab we go to Options ▷ Configure Chart. We will see a window like the following:

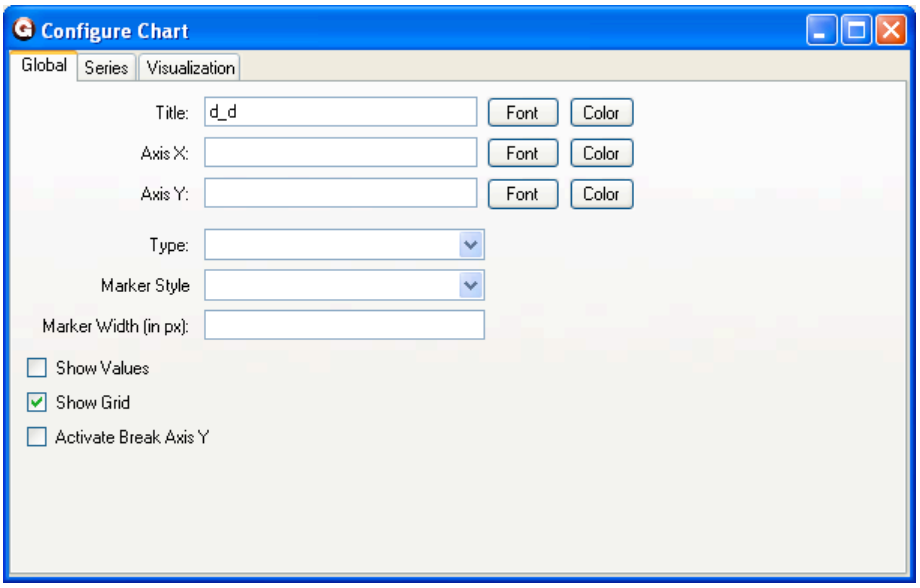



Figure 3.46: Configure chart

The window is divided into 3 tabs: Global, Series and Visualization. In the first one are the general options for the chart: labels and other common features to all series that make up the chart. The Series tab allows you to modify each of the series in the chart on an individual basis, giving priority over the equivalent global option.

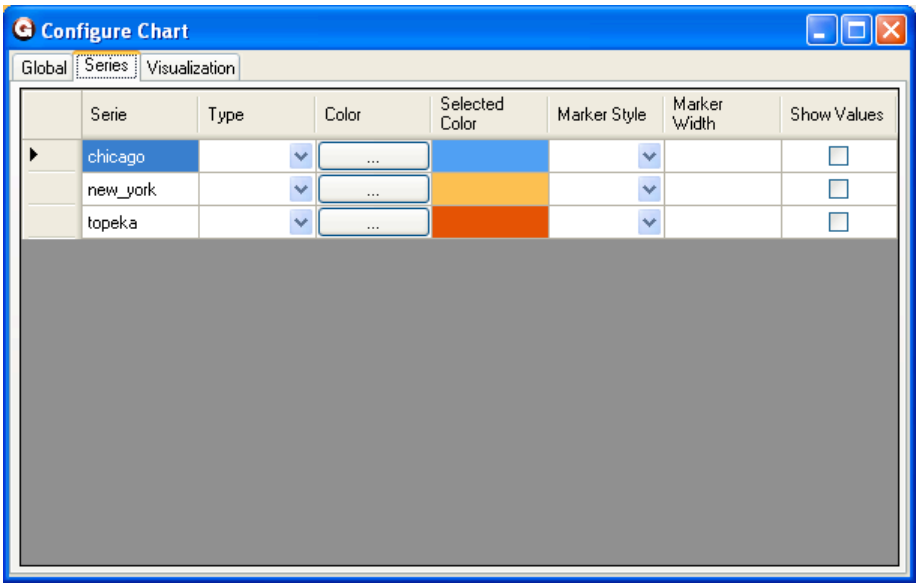



Figure 3.47: Configure chart - Series

In the last tab, display, are the options for the vision of the chart in 3 dimensions. We can make the chart is seen in perspective and some associated parameters to it.

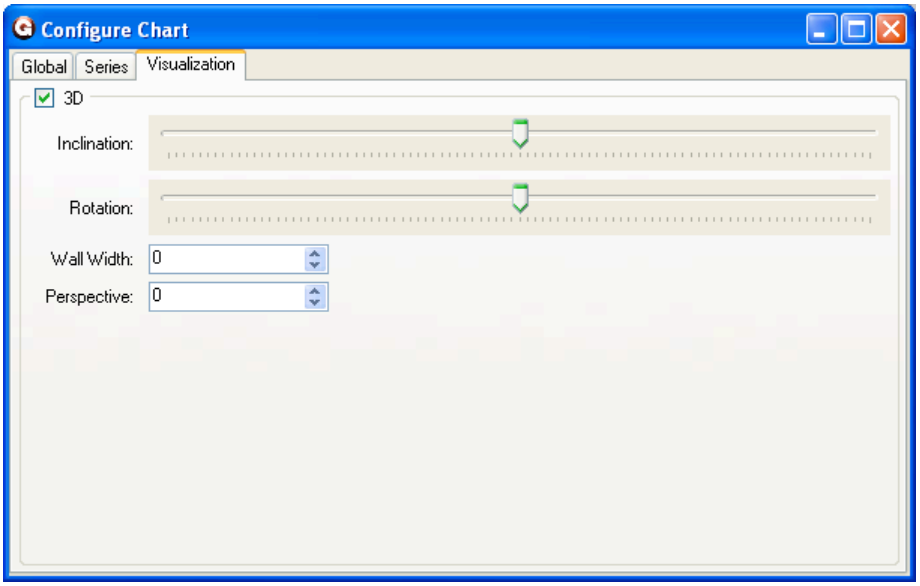



Figure 3.48: Configure chart - Visualization

The 3-dimensional chart is as follows:

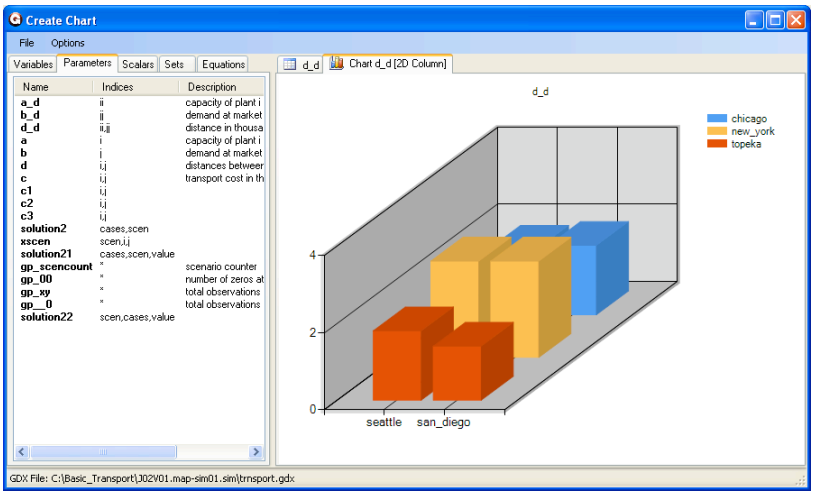



Figure 3.49: 3-dimensional chart

### List of options

**Title:** To put a chart title. By default, the program places the symbol name.

**Axis X:** To put a label to the axis X.

**Axis Y:** To put a label to the axis Y.

**Font:** To change the font of the label for either the title or one of the two axes.

**Color:** To change the color of the label for either the title or one of the two axes.

**Type:** To change the visual style of the columns associated with each series. There are 5 different: Default, Cylinder, Emboss, LightToDark and Wedge.

**Marker Style:** To show markers in the series values. There are 10 different.

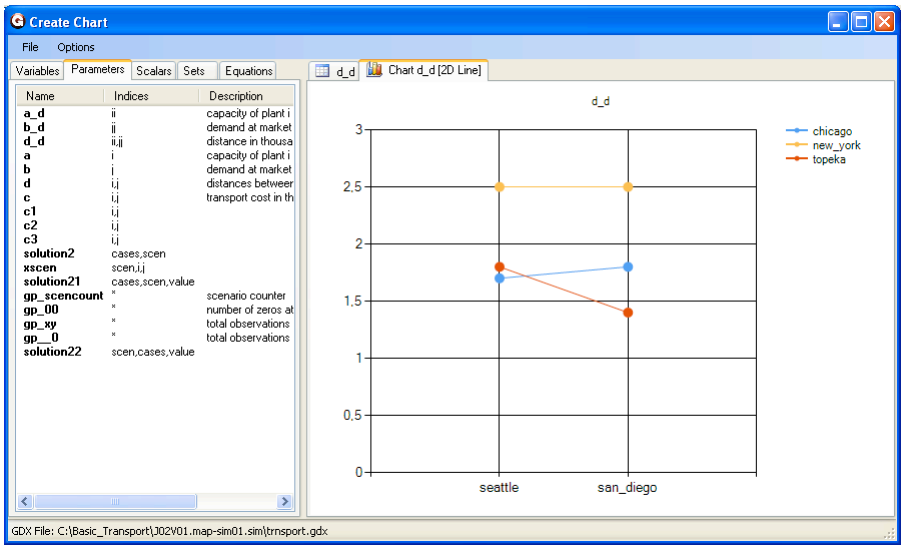



Figure 3.50: Marker

**Marker Width:** To modify the size of the marker.

**Show Values:** To show values in the series chart.

**Show Grid:** To show the grid in the chart.

**Activate Break Axis Y:** It allows reduce the differences between the series values for better viewing.

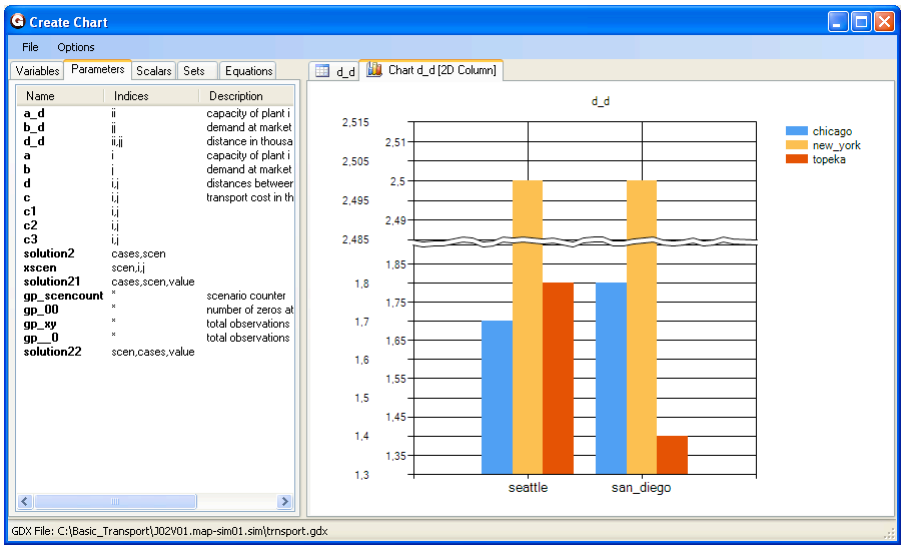



Figure 3.51: Axis Y Break

**Color (Serie):** To indicate the color of the series individually.

**3D:** To enable display of the chart in 3 dimensions.

**Inclination:** To modify the inclination of the chart when it is shown in three dimensions.

**Rotation:** To modify the rotation of the chart when it is shown in three dimensions.

**Wall Width:** To modify the wall width of the chart when it is shown in three dimensions.

**Perspective:** To modify the perspective of the chart when it is shown in three dimensions.

#### 3.6.2.6 Precision

The number of decimal places for data can be changed from Options -> Precision. It will show a window like this:

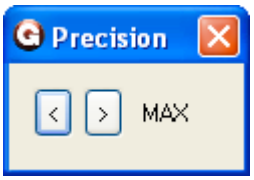



Figure 3.52: Precision

You can round from 0 to 6 digits or specify that you do not want rounding choosing "MAX".

#### 3.6.2.7 Save Template and Update Charts

After creating all the charts you need, you can save them as a template by choosing File ▷ Save Template. This allows you to save all the generated charts as images in the directory of the current simulation, and they can be seen in the 3.6.3.1Edit Listing section. It also saves the displayed tables. If there is a stored template for a particular GDX, the next time you open the same GDX from a different simulation, the application will load the same tables and generate the same charts using data from the selected GDX.

Once created a template, as stated above, the charts will be updated from the current simulation, but also you can create the same charts for the rest of simulations with the option File ▷ Update All Charts. You can choose all the generated templates (one for GDX) or select a specific one. As in the previous case, the images can be viewed in Edit Listing.

The generated templates can be deleted from File ▷ Delete Template. You can delete all at once or select one in particular.

### 3.6.3 Listings

Here's the tool that provides Gsi to work with graphics. Usually the graphics come as output from the implementation of the various models included in the program. From here we operate with them in various ways.

#### 3.6.3.1 Edit Listing

Clicking in Edit Listing appears to us a new window where we see at bottom left of the images generated by the model in different executions. To the right is a matrix where to place the images. In the case of the figure is two rows and two columns, but can be changed at will using the dedicated controls for it. At the top left are two more buttons: **Search**, which is responsible for tracing images on another directory you want, and **Open** that is responsible for opening images previously stored listings.

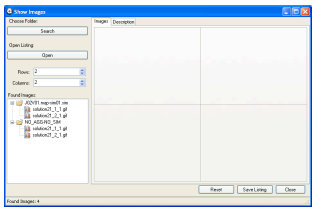


Figure 3.53: Start screen

To place an image on the matrix simply need to drag the image icon (e.g. "solution21_1.gif") to a cell of the array. To do so will be the desired image. After placing all the images you want into place, can be stored in a file to view it or modify it later in the future. This is done from the **Save Listing** button. It is also possible to reset the matrix to be left empty by pressing the **Reset** button.

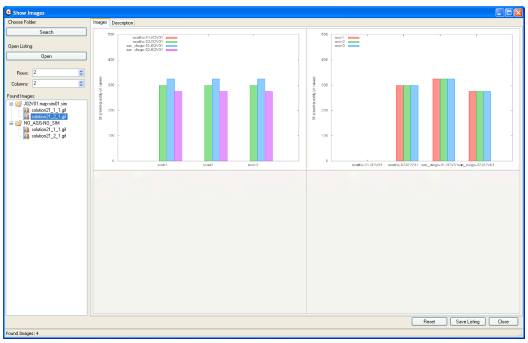


Figure 3.54: Showing images

Each time you insert an image in the matrix we see in the description tab which image is in every cell and also can add a comment about the list.

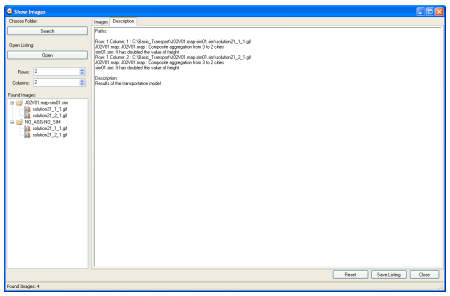


Figure 3.55: Description of the image listing

When the user clicks the right mouse button on an image shows a context menu where there are four choices: **Copy Image**, which lets you copy the selected image to the clipboard, **Delete Image**, which removes the image from the current cell, leaving the empty space , **Print Image**, which lets you print the selected image and finally **Print Listing**, which allows print the entire list in full.

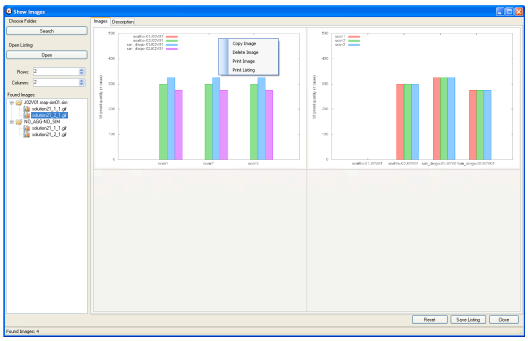


Figure 3.56: Right menu

#### 3.6.3.2 Delete Listings

From the Delete Listings, you can delete those listings no longer needed. You can select several at a time before pressing the Delete button.

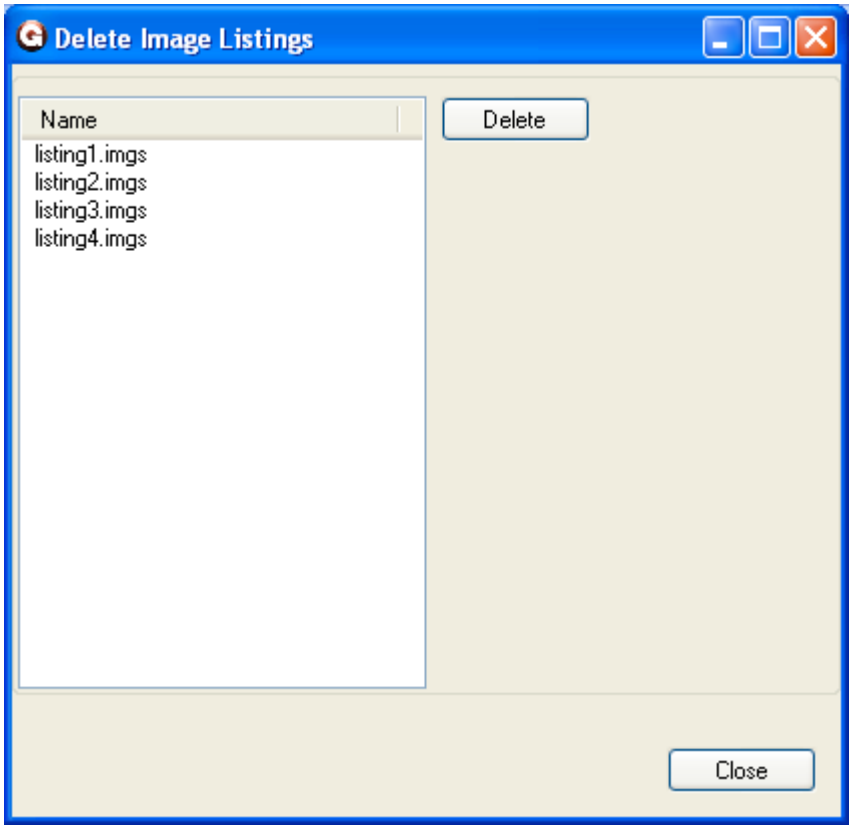


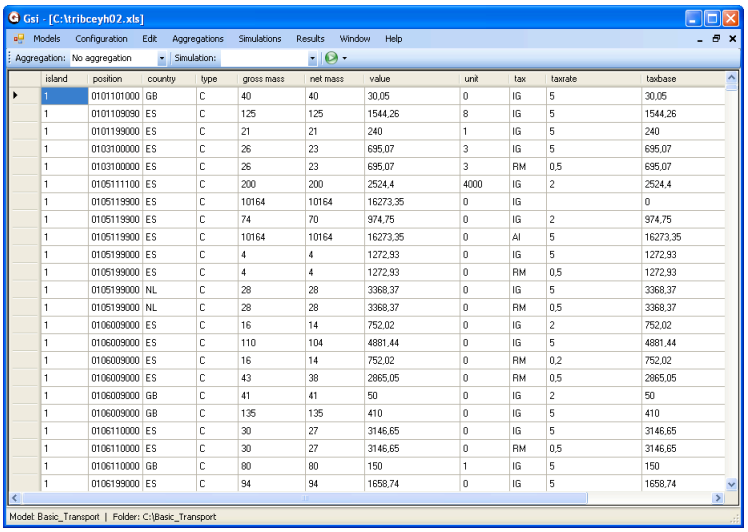

Figure 3.57: Delete listings

### 3.6.4 Excel

From the sub-menu of Excel have two options to open Excel files. We will describe each below.

#### 3.6.4.1 Within Gsi

From the Within Gsi option you can open the active sheet of an Excel file into the program. Changes made here do not change the file. The following figure shows an example:


Gsi - [C:\tribceyh02.xls]
Models Configuration Edit Aggregations Simulations Results Window Help
Aggregation: No aggregation
Simulation:
Model Basic_Transport | Folder: C:\Basic_Transport

| island | position | country | type | gross mass | net mass | value | unit | tax | taxrate | taxbase |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0101101000 | GB | C | 40 | 40 | 30,05 | 0 | IG | 5 | 30,05 |
| 1 | 0101109090 | ES | C | 125 | 125 | 1544,26 | 8 | IG | 5 | 1544,26 |
| 1 | 0101199000 | ES | C | 21 | 21 | 240 | 1 | IG | 5 | 240 |
| 1 | 0103100000 | ES | C | 26 | 23 | 695,07 | 3 | IG | 5 | 695,07 |
| 1 | 0103100000 | ES | C | 26 | 23 | 695,07 | 3 | RM | 0,5 | 695,07 |
| 1 | 0105111100 | ES | C | 200 | 200 | 2524,4 | 4000 | IG | 2 | 2524,4 |
| 1 | 0105119900 | ES | C | 10164 | 10164 | 16273,35 | 0 | IG | | 0 |
| 1 | 0105119900 | ES | C | 74 | 70 | 974,75 | 0 | IG | 2 | 974,75 |
| 1 | 0105119900 | ES | C | 10164 | 10164 | 16273,35 | 0 | AI | 5 | 16273,35 |
| 1 | 0105199000 | ES | C | 4 | 4 | 1272,93 | 0 | IG | 5 | 1272,93 |
| 1 | 0105199000 | ES | C | 4 | 4 | 1272,93 | 0 | RM | 0,5 | 1272,93 |
| 1 | 0105199000 | NL | C | 28 | 28 | 3368,37 | 0 | IG | 5 | 3368,37 |
| 1 | 0105199000 | NL | C | 28 | 28 | 3368,37 | 0 | RM | 0,5 | 3368,37 |
| 1 | 0106009000 | ES | C | 16 | 14 | 752,02 | 0 | IG | 2 | 752,02 |
| 1 | 0106009000 | ES | C | 110 | 104 | 4881,44 | 0 | IG | 5 | 4881,44 |
| 1 | 0106009000 | ES | C | 16 | 14 | 752,02 | 0 | RM | 0,2 | 752,02 |
| 1 | 0106009000 | ES | C | 43 | 38 | 2865,05 | 0 | RM | 0,5 | 2865,05 |
| 1 | 0106009000 | GB | C | 41 | 41 | 50 | 0 | IG | 2 | 50 |
| 1 | 0106009000 | GB | C | 135 | 135 | 410 | 0 | IG | 5 | 410 |
| 1 | 0106110000 | ES | C | 30 | 27 | 3146,65 | 0 | IG | 5 | 3146,65 |
| 1 | 0106110000 | ES | C | 30 | 27 | 3146,65 | 0 | RM | 0,5 | 3146,65 |
| 1 | 0106110000 | GB | C | 80 | 80 | 150 | 1 | IG | 5 | 150 |
| 1 | 0106199000 | ES | C | 94 | 94 | 1658,74 | 0 | IG | 5 | 1658,74 |

Figure 3.58: Within Gsi

#### 3.6.4.2 Open with Excel

Through the "Open with Excel" option is invoked within Microsoft Excel to open the excel file that you specify. After that, the program will display the full content of the file:

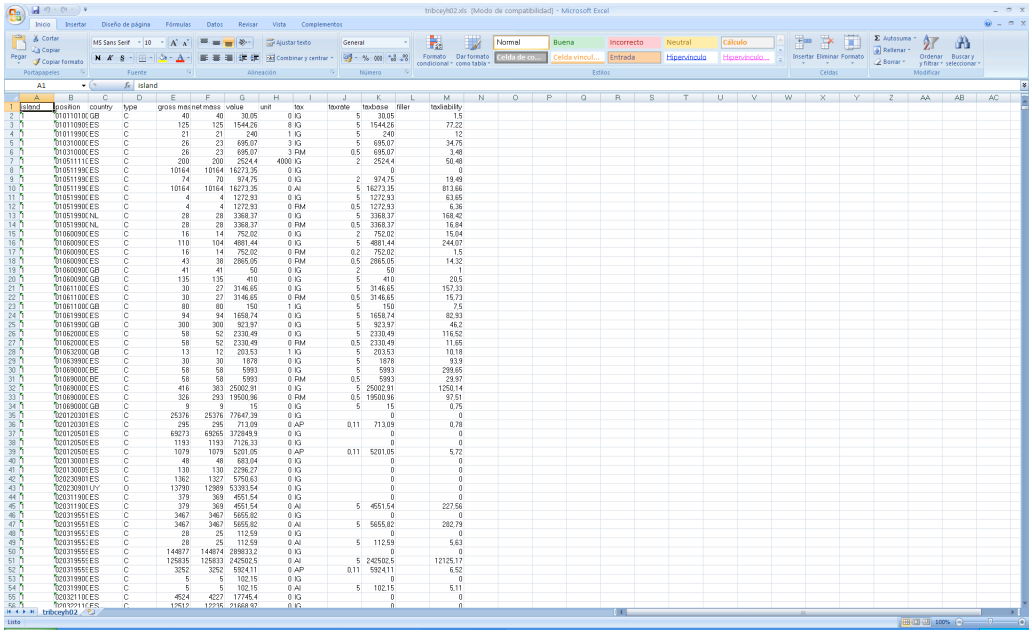


Figure 3.59: Open with Excel

## 3.7 Window

From the Window menu can be mainly two things: to organize the position of the internal windows are open and displayed in a list. First are the three possible organizational options: Horizontal, Vertical and Cascade. Below them are the names of all open child windows. Clicking on any of them the associated window takes focus and is in the foreground.

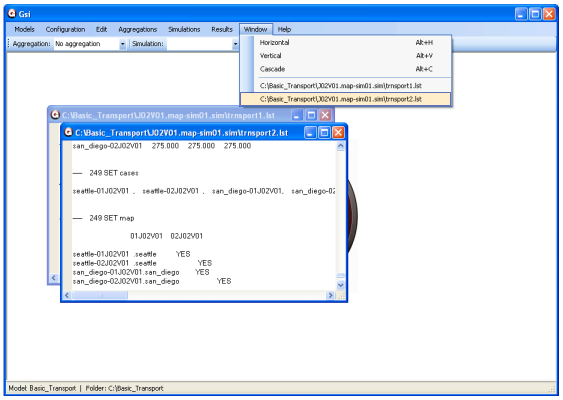


Figure 3.60: Window

### 3.7.1 Horizontal

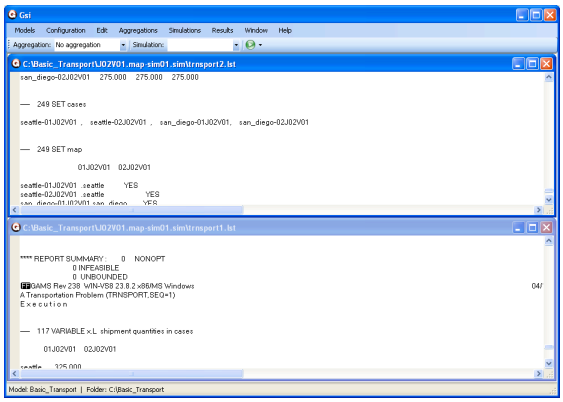


Figure 3.61: Horizontal tile

### 3.7.2 Vertical

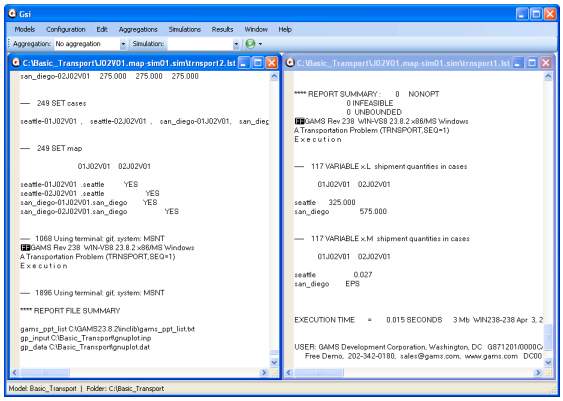


Figure 3.62: Vertical tile

### 3.7.3 Cacade

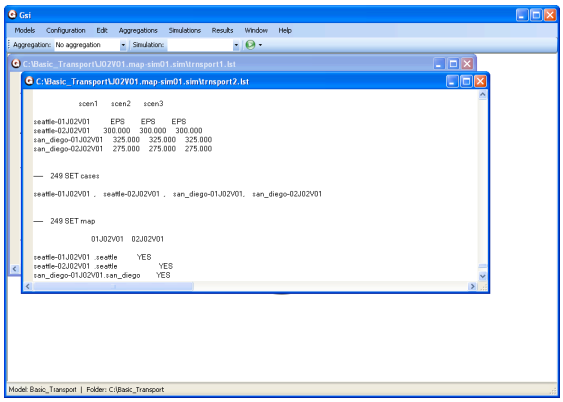


Figure 3.63: Cascade tile

Also in this menu will appear all the windows to access them more comfortably.

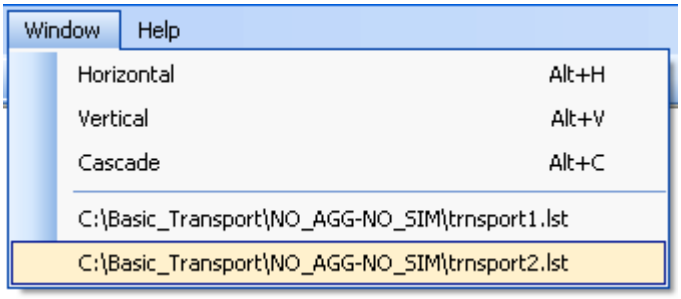



Figure 3.64: Window Menu

## 3.8 Help

The Help menu provides options to access different types of aid, either on the program itself or about designs registered in the program.

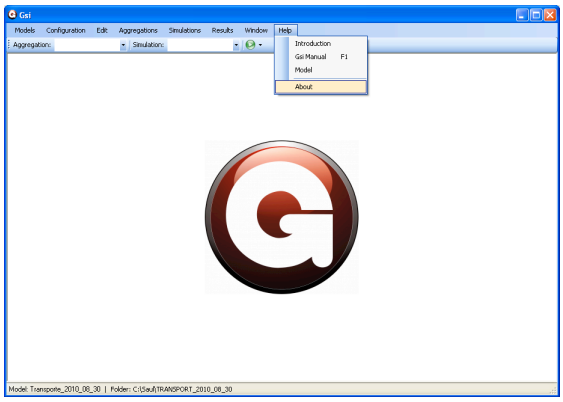



Figure 3.65: Help

### 3.8.1 Introduction

This section will be illustrated briefly the characteristics of the program and the utilities it has.

### 3.8.2 Gsi Manual

Clicking on this option will display the help of the program through a file. pdf (this manual).

### 3.8.3 Model

From this menu entry will display all documents (which will normally be in pdf) that explains the features of the current model.

### 3.8.4 About

The last menu entry is responsible for displaying general information about the program and information about authors.

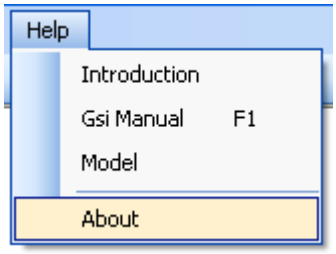



Figure 3.66: Help Menu

Figure 3.67: About